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GENERAL PRACTICE

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Guest Editorial

Dr. R. L. Perkin was born in Toronto in 1930, and obtained his M.D. from the University of Toronto in 1954. Having completed a junior internship at the Toronto General Hospital, he spent an additional year in a General Practice course at the Wellesley Hospital and Hospital for Sick Children. He then began his own practice in Port Credit, Ontario, and this has expanded to a five man group.

At present, Dr. Perkin is a member of the active staff of the Toronto Western Hospital and the South Peel Hospital in Cooksville, Ontario. He is a clinical teacher in the Department of Medicine of the University of Toronto, and has been the lecturer in Medical Ethics since 1963.

Dr. Perkin has always been very active in the College of General Practice, and at present is Chairman of the Committee on Undergraduate Education. He is also Director of the Family Practice Unit at the Toronto Western Hospital. Here one of his projects involves research concerning better clinical methods of separating viral from bacterial upper respiratory infections.

Dr. Perkin is married and has four children. He is an ardent golfer, and during the winter spends a great deal of his spare time on the ski slopes.

Medicine faces a manpower shortage. Nowhere is this situation more apparent than in the field of general practice. In the ten year period 1955-1965, there was a 94.6% increase in specialists and only a 4.1% increase in general practitioners at a time when the Canadian population increased by 18%. The decreased number of young doctors entering general practice has occurred at a time when those of us already engaged in this field of medicine have been experiencing an increasing demand on the part of patients for the services we provide. If the present trend continues, one can foresee the eventual disappearance of general practice from the Canadian medical scene.

This must not happen. The very possibility causes concern among specialists and G.P.'s alike. Specialty training is geared to produce consultants who see patients primarily on referral. This is what they are trained to do, and what most of them wish to do. We need to have at least 50% of our profession doing primary first contact patient care—call it general practice or family medicine or what you will — but let us not forget about it. Admittedly, there is much in the old image of the G.P. as a "jack of all trades" that does not fit the contemporary scene. But the need to have a doctor to do this job has never seriously been questioned.

It is the job itself that must change with the times. And, indeed, this is already happening. What is emerging is called family medicine. It retains the large measure of good inherent in general practice and adds to it newer ideas in terms of health maintenance, earlier diagnosis, more skillful management of psychosocial problems, and more efficient methods of conducting medical practice. Much work has already been done to define the content and limits of family medicine, so that meaningful training programmes may be developed for both undergraduate and postgraduate physicians. One might almost say that a "new specialty" was being born.

Yet, it will be very different from any existing specialty. The fascination of general practice is in the breadth of medicine that it encompasses. The G.P. sees a wide panorama of disease, and has the unique opportunity of observing it over long periods of time. The continuing relationship that he establishes with many of his patient families is a privilege afforded to few people in life. By contrast, his specialist colleague usually has contact with his patients for a much shorter time and sees a narrower spectrum of disease, but has more opportunity to explore this narrow field in greater depth. Each has its appeal, and should, on its own merits, attract young men and women to its ranks.

Several factors have in the past interfered with medical school recruitment for general practice. There has been little, if any, contact between students and G.P.'s at most of our medical schools. This situation

is changing, and hopefully students will now have the opportunity to become better informed about general practice. At the post-graduate level, there is need for expanded and improved training programmes for those graduates proceeding to careers in family medicine. Finally, it should be noted that the ills of general practice itself, thought by some to be incurable, are proving very amenable to treatment. Overwork and long hours are responding to group practice and closer co-operation among solo physicians. Income levels compare favourably to our specialist colleagues. Good hospital facilities are available to most. Well organized post-graduate courses keep us up to date. Lack of prestige, if it ever was valid, certainly is no longer. In the community in which he lives and works, so long as he does *both* well, the G.P.'s prestige is very high.

We live in rapidly changing times in which information and its communication are vital to every thing that we do. Nowhere is this more important than in the relationship between practicing physicians and student physicians. The editors of your journal, and the students who have written the excellent articles in this issue, have recognized the significance of this channel of communication. Herein you are afforded an opportunity to become better informed about general practice. Read it. Enjoy it. Think about it.

R. L. PERKIN, M.D.

Editorial

The present curriculum of this university does not adequately prepare the graduate for the practice of general (or family) medicine. This may be a pardonable fault in view of the quantity and complexity of more academic subjects which the Faculty requires the student to master at this time. The present policy in curriculum planning, which strongly emphasizes the medicine encountered in a large urban general hospital—that is, medical and surgical problems requiring the attention of specialists—lays itself open to considerable criticism. When the student voice in the future becomes more influential, medical educators may come to realize that ever increasing numbers of students would approve required short-term preceptorships and increased time in emergency departments and medical and G-P out-patient clinics. In addition, more emphasis in lectures may be desirable on problems such as those discussed in Mr. Shier's article "Common Things Occur Most Commonly" and *practical* instruction in the "basics" of family medicine such as minor surgery, use of drugs in psychiatry and medical economics and jurisprudence. Such changes we would certainly hope will be considered soon. However, it is our opinion that the almost total lack of even *information* about general practice is, at present, not excuseable. This issue was conceived by the editors as an attempt to partially circumvent this shortcoming, and to this end we are confident that Messrs. Shier and Prost have been successful. Most of the articles should be of interest and value to anyone considering clinical medicine—be it general practice *or* a specialty.

PRECEPTORSHIPS — CLASS OF 6T9

It has recently come to our attention that for some years preceptorships *have* been available to Ontario students who have completed the third medical year. This excellent opportunity has been poorly publicized in the past but this will be remedied in the near future. Interested students may spend 1 - 2 weeks with general practitioners in various parts of Ontario, during this time working closely with the physician concerned and being a guest in his home. The preceptorship may be spent anytime between the third and fourth year or even during fourth year (should the perils of Public Health prove too much), at the student's convenience. For further details and applications apply to Dr. E. L. Brown, Chairman of Preceptorship Committee, Ontario Chapter, College of General Practice of Canada, 14 Hincks Street, St. Thomas, Ontario. Dr. Brown will be visiting the class of 6T9 sometime in the near future: hopefully after this issue has been thoroughly perused by the reader.

W.K.L. D.A.L.

Common Things Occur Most Commonly

R. M. Shier B.Sc. 6T8

Every medical student has on some occasion probably considered the basic, yet all-encompassing field of general practice as a career. However, he is very ill-equipped to enter this field of medicine. Firstly, he is taught almost entirely by specialists who see patients on a consultant basis. The family physician is the only general practitioner with whom most students are likely to have contact, and then only on rare occasions. Thus, the man himself remains shrouded in a cloud of mystery and the student is unable to identify with him. Secondly, the type of illness seen in hospitals is not representative of that in the population as a whole. Hospital beds are in great demand, and therefore, only the seriously ill (or those suspected of being so) obtain them. Also, in a large teaching centre patients are often referred from outlying hospitals because of the rarity of the particular case. In this environment the student obtains a distorted concept of the incidence of disease. Finally, the vast scope of general practice makes it less amenable to analysis. These combined factors act as an effective deterrent to the student's ability to reach an informed decision about his future role in general practice.

This article deals with the content of general practice and attempts to organize it into more readily assessable components. Its purpose is to provide the student with a better understanding of how the general practitioner's time is utilized and what disease categories and patient types he encounters most frequently. For the obvious is true, *common things occur most commonly*. It is hoped that this paper will better enable the student to examine general practice as a potential career.

It was considered essential that the statistical data for this article be drawn from Ontario if it were to be most meaningful to University of Toronto students. Consequently, most of the references are based on the only in-depth study of general practice done in Ontario—*The General Practitioner* by Kenneth F. Clute.

HOW HARD DOES THE GENERAL PRACTITIONER WORK ?

Before considering in detail what actually comprises the work of a general practitioner, it might be useful to learn how much time he spends engaged in this work. In Clute's study, the number of hours per week for a general practitioner varied from 23 to 103 with a mean number of 52.5 hours per week. Seventy-three percent worked more than 45 hours per week. Trenholme's study of *female* family practitioners[1] showed that in 1965, 56 percent of female physicians in Ontario worked more than 45 hours weekly. A comparison of the two studies indicates that male general practitioners work longer hours than their female counterparts. One-fifth of the general practitioners in Clute's study spent two evenings a week in the office, one-fifth spent four evenings a week, while about one-third had no evening office hours. Forty percent worked on Saturday afternoons, while another 23 percent spent Saturday afternoon and evening in the office. Finally, 30 percent of the doctors worked three hours or more on Sundays. Probably of more significance is the fact that one-third of the physicians never took any complete evenings off from Monday to Friday. From this data one would conclude that no matter what the general practitioner's work entails, his task is certainly never completed.

WHAT KIND OF WORK DOES THE GENERAL PRACTITIONER DO ?

The content of the general practitioner's work can be grossly divided into major categories. One-half of the Ontario physicians had a practice composed of internal medicine, paediatrics, obstetrics, and minor surgery. In addition, approximately one-third included abdominal surgery. Fourteen percent also did some general anaesthesia. A very small percentage of the doctors limited themselves to medicine, obstetrics, and minor surgery, while the rare individual practiced internal medicine only. It is readily seen that the scope of general practice is vast in most cases, but it is important to realize that it is possible for physicians to be selective to some degree in the type of work in which they engage themselves.

a) Medicine

General medicine as would be expected, is the basic component of the family physician's work. So important is it, that Peterson in his study of general practitioners in North Carolina[2] came to the conclusion that a direct correlation could be drawn between the quality of a physician's work and the degree of his training in internal medicine. Internal medicine, therefore, should be a primary interest of a student contemplating general practice.

b) Surgery

From the above statistics it is apparent that both major and minor surgery play an integral part of the general practitioner's work. Of those physicians undertaking abdominal surgery, it is significant that none did so in areas where the population lay between 10,000 and 100,000 people. Only 25 percent practiced abdominal surgery in towns under 1,000 people in size. Hospital restrictions, especially those in large teaching centres, and the availability of more qualified specialists are the reasons why few general practitioners do major surgery in the large cities; the lack of hospital facilities and of professional assistance is probably the deterring factor in the very small centres. Thus, location is an important consideration for the student intending to include general surgery as a component of his general practice.

Frequently, the abdominal surgery undertaken by the general practitioner was limited to appendectomy and

hernia repair, while other procedures included caesarian section, hysterectomy, cholecystectomy and occasionally orthopedic surgery. Of those doctors who did not do abdominal surgery, except as assistants, many performed such procedures as tonsillectomy and D. and C. Therefore, the student should take note, that although there is a growing trend for general practitioners to exclude major surgery from their practices, it is still possible for interested and properly trained physicians to include it.

c) Obstetrics

Obstetrics is a major component of the average general physician's practice and almost all of the physicians in Clute's survey were involved in this field. The majority performed between 60 and 100 deliveries a year. Trenholme's study indicated that obstetrics was much more widely practiced by male general practitioners. Only 24 percent of female physicians had 60 or more deliveries per year as compared to 72 percent for male doctors. It is interesting to note that this phase of their practice was considered to be one of the most enjoyable by almost all of the physicians polled, in both the male and female surveys.

d) Anaesthesia

Anaesthesia was a specific interest of one-sixth of general practitioners (those administering several general anaesthetics per week). The survey did not show these men to be concentrated in communities of any particular size. Since the number of surgeons is increasing much more rapidly than the number of anaesthetists. anaesthesia will continue to play an important role in general practice.

e) Pharmacy

For those students interested in pharmacology it is encouraging to note that 39 percent of Ontario physicians did their own drug dispensing, although in a few cases this was on a minor scale. The urban versus rural effect was also in evidence here. In areas of population of 10,000 or less, approximately two-thirds of physicians maintained their own pharmacies, whereas only one-fifth did so in communities where the population exceeded 10,000. With the advent of more numerous and more readily available pharmacies, in the future dispensing will likely play a lesser role in general practice.

f) Laboratory

The office laboratory is a necessary adjunct to the general practitioner's diagnostic tools. However, how much time he spends in it depends greatly on his location. In all areas, the most commonly performed procedures were haemoglobin determination (by Sahli or colorimeter technique) and routine urinalysis including microscopic examination. Commercial laboratories have removed much of the need for the physician to perform other investigative procedures, especially in urban areas. Nevertheless, elaborate laboratory facilities and equipment such as electrocardiograph machines are common in rural areas. Approximately one-fifth of Ontario physicians practised fluoroscopy and made their own films of the chest and long bones. Almost all of these films were subsequently read by radiologists, however.

WHERE DOES THE GENERAL PRACTITIONER SPEND HIS TIME?

The traditional image of the general practitioner wending his way from home to home to tend the sick is no longer generally an apt description of his life. Where then does he ply his skills? Basically, he may conduct his practice in the hospital, in the office, or through home visits. The word "visit" will be used in this text to refer to any occasion in which a physician renders service to a patient. In Clute's study, the number of home, office and other non-hospital visits per week ranged between 40 and 400 with a median number of approximately 86. The number of office visits greatly outnumbered the other non-hospital visits. Office visits occurred at a median rate of 74 per week, while house calls averaged 12 visits per week. The number of hospital visits varied between 2 and 75 weekly with a median number of 29 visits. Trenholme's study of female practitioners in Canada indicated that the majority of full-time physicians saw between 60 and 149 patients per week in the office, while home visits were reported at less than 10 weekly by 70 percent of the female doctors. From these figures it may be concluded that general practitioners see the greatest number of patients in the office (more than three times as many as in hospital) and that the house call volume today is small. This, however, is only representative of an average practice. An entirely different account might be presented in some rural areas.

It was stated earlier that the general practitioner worked a mean number of 52.5 hours per week. If he were to spend that entire time with his patients and saw a median number of 86 patients outside of hospital and twenty-nine inside of it per week, a hypothetical "average physician" would have approximately 27 minutes to spend with each patient. However, in fact, the physician spends much more time with some patients and much less with others, so that this mathematical figure has little practical value and is included here for theoretical interest only.

WHAT TYPE OF PATIENT DOES THE GENERAL PRACTITIONER SEE?

Now that the content of general practice has been considered in a broad sense, attention may be turned to the object of his endeavour, the patient. Female patients accounted for slightly more than one-half of the visits to the home, office and hospital in Clute's study, and Trenholme's study indicates that the majority of Canadian female physician's practices comprised ten percent or less adult males. However, 23 percent of the female doctors polled deliberately limited or ex-

cluded adult males from their practices. Clute reported that approximately one-half of the physicians' office and home visits were spent seeing patients with illnesses which were new, and for which he had never treated them previously.

In examining the types of patients the physician encounters, specific emphasis should be placed on their ages. Home visits were required most frequently by the age group of 65 and over, and next most commonly by the 15 to 24 year group. For every home visit required by an individual between 15 and 24 years of age, the number of home visits required by an individual over 65 was nine.

Office visits were in greatest demand in the age group from 25 to 34 and in least demand in the group from 5 to 14 years of age in as much as for each visit required by a member of this age group, the child below 5 years and the person over 15 years required two or three visits. Hospital visits were twice as common in the 65 and over group as in any other age group. Thus, in each age group up to age 64, approximately three-quarters of all visits were office visits, whereas in the group 75 or over only 30 percent of their visits were in the office. It is important to realize that the average age of the patients of any particular practitioner often reflects his own age, in that younger men tend to attract younger people while the older practitioner's patients grow old with him. The following table indicates the number of visits for the different age groups as a percentage of the total visits in each category.

TABLE 1[3]

Age	*Office Visits*	*Home Visits*	*Hospital Visits*
under 1 yr.	4.4%	1.7%	4.5%
1-4 yrs.	7.6%	10.1%	7.6%
5-14 yrs.	8.1%	13.0%	7.7%
15-24 yrs.	15.1%	5.7%	8.6%
25-34 yrs.	21.1%	8.5%	16.1%
35-44 yrs.	14.4%	8.5%	13.6%
45-54 yrs.	11.0%	8.1%	8.1%
55-64 yrs.	8.1%	11.1%	8.9%
65-74 yrs.	7.0%	13.8%	12.7%
75 and over	3.1%	19.5%	11.2%

WHAT TYPE OF DISEASES DOES A GENERAL PRACTITIONER SEE?

If a physician enters a specialty because he desires to study one particular area in depth, then surely the man entering general practice does so because he appreciates variety. An examination of Table 2, which lists the commonly occurring disease categories in general practice as reported by Clute, attests to this concept. For just as the broad subjects comprising a general practitioner's work are varied, so the individual disease entities which confront him are greatly diversified. However, certain conditions do present more frequently than others.

TABLE 2[4]

NON-HOSPITAL VISITS OF ONTARIO PHYSICIANS

Category	*Rate per 100 Visits*
Prenatal care	7.2
Acute upper respiratory infections	6.5
Symptoms, senility and ill-defined conditions	5.4
Persons receiving prophylactic innoculation and vaccination	5.3
Infections of skin and subcutaneous tissue	3.3
Psychoneurotic disorders	3.2
Essential benign hypertension	3.0
Influenza	2.8
General medical or laboratory examination	2.4
Arteriosclerotic heart disease, including coronary disease	2.3
Laceration and open wound	2.1
Bronchitis	1.5
Asthma	1.5
Sprains and strains	1.5
Anaemia	1.3
Well baby and child care	1.3
Diabetes mellitus	1.3
Otitis media and mastoiditis	1.3
Fractures	1.3
Superficial injury and contusion	1.2
Pneumonia	1.2
Obesity	1.1
Gastro-enteritis and colitis	1.1
Ulcer of stomach and duodenum	1.1
Postpartum observation	1.0
Menopausal symptoms	1.0
Pernicious and other hyperchromic anaemias	0.9
Acute bronchitis	0.9
Hay fever	0.9
Muscular rheumatism	0.9
Infective disease of uterus, vagina, vulva	0.8
Disorders of menstruation	0.7
Synovitis, bursitis, and tenosynovitis	0.7
Cystitis	0.6
Measles	0.5
Vascular lesions affecting central nervous system	0.5
Diseases of teeth and supporting structures	0.5
Hernia of abdominal cavity	0.5
Burns	0.5
Arthritis	0.5
Other categories	28.5

Prenatal care without complication was the commonest reason for an office visit. The average general practitioner saw approximately one prenatal patient per day. Acute respiratory tract infection was the most common presentation with pathological findings. This category included both viral and bacterial infections. The general practitioner's ever-increasing role in the area of chronic disease and geriatrics is born out by the high incidence of manifestations of senility as a composite disease category. Considering that this category was so important in the survey, it is surprising that more consideration is not given to geriatrics in medical schools so that students would be better equipped to evaluate their interest in this field. A similar statement could be

made about the high incidence of dermatological disorders, as this subject is not dealt with until the fourth medical year at the University of Toronto.

Psychoneurotic disorders, not surprisingly, were among the most common disease categories, and it is interesting to note that this area was ranked as one of the most distasteful by the physicians and one in which they felt their training was inadequate. The importance of this field of practice is not fully elucidated by these figures which represent only the primary reason for visiting a doctor. If the number of patients presenting with emotional problems as a secondary complaint were included, then it would probably be seen that this area of medicine is a factor in the majority of cases the doctor encounters. Thus, it should be apparent to the student that there is a trend in family practice today for the physician to assume an increasing role in psychosocial medicine with a concomitant decreasing responsibility in the field of technical procedures.

Essential benign hypertension, arteriosclerotic heart disease, bronchitis and asthma, anemia and diabetes mellitus were among the most common medical problems, while lacerations, open wounds, sprains, fractures and contusions were among the most frequent surgical conditions.

TABLE 3[5]

HOSPITAL VISITS OF ONTARIO PHYSICIANS

Category	*Rate per 100 Visits*
Postpartum observation without abnormal symptoms	7.3
Fractures	7.1
Arteriosclerotic heart disease including coronary disease	6.0
Diabetes mellitus	4.4
Appendicitis	3.8
Hypertrophy of tonsils and adenoids	3.4
Symptoms, senility and ill defined conditions	3.1
Delivery without mention of complications	3.1
Ulcer of stomach and duodenum	2.8
Hernia of abdominal cavity	2.8
Pneumonia	2.2
Acute upper respiratory conditions	1.9
Asthma	1.7
Gastro-enteritis and colitis	1.5
Laceration and open wound	1.5
Psychoneurotic disorders	1.5
Otitis media and mastoiditis	1.3
Essential benign hypertension	1.3
Infections of skin and subcutaneous tissue	1.3
Cholelithiasis, cholecystitis and cholangitis	1.2
Vascular lesions affecting central nervous system	1.1
Abortion	1.0
Displacement of intervertebral disc	1.0

Table 3 lists the reasons for hospital visits by physicians in Clute's study. Just as obstetrics was the major category of work in the office, so it played an equally important role in the general practitioner's hospital time. Delivery without complication and post partum observation were the most common reasons for hospital visits. The importance of obstetrics as an undergraduate subject cannot be overemphasized to the student interested in general practice.

Fractures presented as a frequent surgical reason for visits to the hospital. The management of lacerations and fractures represent the most common minor surgical procedures the physician performs in hospital. Coronary heart disease, followed by appendicitis and peptic ulcer were probably the most common causes for hospital admission. The most commonly occurring problems seen in the office that would probably also require hospitalization were heart disease and diabetes mellitus.

The statistical data presented in Table 2 may be regrouped into broader categories as in the International Classification of Disease. If this is done, it is seen that diseases of the respiratory system are almost twice as common a reason for office and home visits as any other. This class would include such conditions as respiratory infections, bronchitis, asthma, pneumonia and hayfever. Traumatic accidents are the cause of the second most common category which includes the many surgical reasons for visiting the doctor. Disease of the circulatory system including arteriosclerotic heart disease, hypertension and cerebrovascular disease is the third most frequent reason for a visit.

In classifying visits in this way, prenatal care falls to fourth place in frequency. Thus, if broad categories of disease incidence are considered, obstetrical patients as a group are not encountered as frequently as medical and surgical patients as a group. In conclusion, it is important to put this discussion into proper perspective. In practice, it is the patient who is important, not his disease category. There is much truth in the statement that there are no diseases, only sick people.

In this article some common aspects of general practice have been discussed. It is to be hoped that it will provide the student with a better idea of what general practice entails. In the future, greater numbers of students will be able to examine general practice firsthand in the Family Practice Units which have been established in the larger teaching hospitals. Thus, the student will have a better opportunity to evaluate general or family practice as a career. Never before has the demand been so great for physicians who will look after the common illnesses of the population; and as this article attempts to point out, common things occur most commonly.

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FOOTNOTES

1. Trenholme, M.: Women Doctors in Family Practice. Canadian Family Physician, Sept. & Oct., 1967.
2. Peterson, O. L. et al.: Journal of Medical Education, 31, No. 12, Part 2, 1956.
3. Clute, K. F.: The General Practitioner, p. 242.
4. *Ibid,* p. 246.
5. *Ibid,* p. 247.

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The General Practitioner – The Man And His Ethics

W. J. Prost 6T8

The term *ethics,* although a word which is not difficult to understand, is rather hard to define precisely, and brings a number of ideas to mind. It is concerned with the nature of what is good and right; it is concerned with moral duty and obligation; it is concerned with professionally endorsed standards of behaviour; it is concerned with the rules of conduct recognized in certain interpersonal relations. In short, it is the science of the human character in its ideal state.

Particularly, medical ethics is concerned with the conduct of physicians toward their patients and toward society as a whole, and it should include a consideration of the will and motive behind this conduct. Thus two aspects are seen to be present. A code of ethics, although more flexible, is really a code of laws, but ethics in its broadest sense involves the rationale behind the laws. This is exemplified by the code of ethics of the Canadian Medical Association which states that "as a stream cannot rise above its source, so a code cannot change a low-grade man into a high-grade doctor, but it can help a good man to be a better man and a more enlightened doctor." We shall not belabour the reader with a didactic list of "thou shalt" and "thou shalt nots", with which he is probably familiar anyway, but rather consider ethics in the broad sense of the word. This article will have a two-fold purpose. In the first place, we will consider the man himself, and what it is about him which should result in his being ethical. Secondly, we will examine some problems in general practice which fall into the realm of ethics-problems to which the answers may not be so clear cut. In doing this, we cannot really separate a man's ethics from his character.

We hasten to add that we do not have all the answers, but it is important at least to be aware of these problems, and to be thinking about them, since all of us will face them sooner or later, whether family doctor or specialist.

Let us consider that which seems to the author should constitute the character of a good doctor, and perhaps especially a good general practitioner. As another has said, medical ethics in its strictest sense always lies in the attitude of the heart.

Probably the most important characteristic for the general practitioner to possess is that of being personable and having a liking for people. He must enjoy meeting all sorts of personalities and problems, and must, in a sense, be all things to all men. Although he may not particularly enjoy treating some people, he must be prepared to give them his best. Dedicated care is just as important to the patient as technical excellence, and upon the physician's personality, rightly or wrongly, is often based the patient's estimate of his medical ability. Without this characteristic, the general practitioner is doomed to failure.

Of course, there are other characteristics such as industry, kindliness, devotion, intelligence, and respect and love for the profession, to name a few, which should be standard equipment. Without them, one does not deserve even to be called doctor, let alone the exalted title of family physician. However, some characteristics are needed over and above these. Perhaps they will seem rather obvious, but I feel that they need emphasis. The following observations are taken largely from a booklet entitled *It Takes More Than Intelligence* put out by Rohrer, Hibler, and Replogle, Consulting Psychologists. The author was greatly impressed by them, and submits them to the reader. They were meant to apply to the business world, but I believe that they are very necessary for success in medicine as well and that more attention should be paid to them than is at present.

In the first place, a good man learns from experience. He grows in skill, competence, and understanding to the extent that he uses his experience effectively. How important this is to good practice in medicine! Some men graduate and are scarcely any more competent after five or ten years of practice than at first. For them, ten years of experience is merely one year's experience ten times over. One must be able to organize what one has learned from experience, and this demands flexibility. This ability to extract meaning from experience is also a prerequisite for exercising judgment, for surveying an array of facts, and coming up with the appropriate course of action. The desirable but rare combination of good judgment and personal flexibility is a quality of successful men in any profession. A decision must often be made before all the facts are present or can be analysed. At other times, a decision or judgment must be suspended until more facts come in. It is a wise man who is able to tell when he is in the first of these situations and when he is in the second. The reader will readily see how very relevant this is to the practice of medicine.

Secondly, and what the author considers most important, successful men have energy and drive reflecting an inner compulsion that far outweighs the outer attractions of success. They are dissatisfied with the mediocre, and do something about it. They restlessly search for a better way to get something done. They do not need external incentives to make them perform well; they have an inner compulsiveness which drives them toward doing their best, always. They feel a strong sense of personal responsibility and live their work, never lowering their standards. This quality is a prize to be greatly sought after in the general practitioner. It automatically prevents him from overstepping his abilities, since the re-

sult may be mediocrity. At the same time it stimulates him to learn better methods so that he is qualified to meet the challenge. He will never be satisfied with anything but the very best for his patients, and this will be true whether he is treating a major disease or doing something as commonplace as suturing a laceration.

Thirdly, the good doctor should have faith in himself —a *realistic* faith solidly grounded in courage, discipline, personal organization, and most important, experience. He has faith to push ahead even when in doubt, because his actions are based on sound principles. He has a strong degree of personal stability and consistency. He is not overly dependent on the approval of others, although he accepts constructive criticism objectively. Without this faith in himself, the physician will find it difficult to make decisions, to reason effectively, and to initiate treatment. Worse, he will communicate this lack of confidence to his patients, who will lose confidence in him. This is not to imply that one should act rashly or impulsively, but rather implies the ability to organize one's thinking and undertake a course of action, whether that course be to initiate treatment, or to watch and wait.

Fourthly, successful men readily attract the respect and liking of others. They manifest personal warmth, and have the ability to enlist the cooperation of others. They are able to build and sustain good personal relationships. On the other hand, such men are sensitive to public opinion, but are not ruled by it. If necessary, they will stand up for their convictions and will not allow personal feelings to influence their judgment. It takes a great deal of tact to steer a middle course.

Finally, the values of these individuals are consistent, enduring, and compassionate. They have personal values and personal depth, and find meaning in their experience. They are men of integrity who find relevance, significance, and usefulness in their experience. The doctor who sees no meaning in his practice will soon become little more than a technician who mechanically treats disease of the body. His enthusiasm will be lacking, and his patients will notice it. Externally he may be a successful doctor, but inwardly, he will have no personal satisfaction. The shell of success must have the substance within to make it worthwhile.

The author is convinced that if these characteristics, few and simple though they may seem, were part of every practitioner of medicine, the quality of medical care would improve greatly, and discussions about ethics would not be necessary. Unfortunately, as the reader will appreciate, to find all these traits in one individual, coupled with intelligence as well, is a rare thing.

An ethical man does things to the best of his capabilities, and to be capable he must be well trained. Therefore, a consideration of what comprises adequate training for the general practitioner is warranted. Since this subject will be dealt with elsewhere in this issue, we will make only a few relevant comments here.

The amount of training the general practitioner gets will depend on where he wishes to practice. Even within a certain area general practice is largely what the individual makes it. Thus the physician may within limits tailor his practice to his own wishes and interests.

For urban practice, a junior internship is probably sufficient, although further training is always helpful. In this environment, consultants are readily available to handle patients requiring hospitalization, and therefore less specialized training is required.

If, on the other hand, he wishes to do rural or frontier practice, more training is required. Two avenues are open: either he may take further training in an organized programme, or work for an established physician to gain experience. Either alternative is probably better than starting out in solo practice. It is the author's opinion that working for another physician can provide equally good training, and certainly the financial returns are better. In addition, one gains a foothold in the area where he intends to practice. An established physician can obtain further training as his practice dictates, and as he wishes. For example, if a doctor sees a large number of fractures and wants to be able to handle more of them himself, he should obtain some special training in orthopaedics.

It should be emphasized that the general practitioner must always be alert to new developments, and should be "in touch" with a teaching centre in order to keep abreast of advances in medicine. There is a real danger that the general practitioner will "rest on his oars", and fall behind, the result being poor medical care. Some doctors prefer to be associated with the out-patient department of a teaching hospital to keep them up to date, while others take postgraduate courses, read journals, or attend conferences. The most dangerous pitfall is that a doctor will become set in his ways so that he is not receptive to new ideas. His education should be lifelong. In a large teaching centre, constant contact with other doctors in a stimulating, research-oriented environment keeps the specialist more alert and up to date, while the general practitioner, often more isolated, must put forth a double effort to achieve this. But it can be done.

We will now consider what is probably the most controversial subject of our discussion, namely, the *scope* of the general practitioner. We realize that there will be differences of opinion, but that is why we are considering the problem.

Once again, the scope of the general practitioner will vary with the type of practice. In the large city, the general practitioner will inevitably concern himself mainly with office work and proportionately less hospital work. Many of the larger hospitals will be restricted to specialists, and in addition, lack of time will force him to refer many of his complicated cases anyway. In an urban environment, he will do very little surgery, limited mostly to minor procedures done in his office.

In general, in smaller towns farther from large centres, the physician will need to be more self-reliant, and will have increased freedom. Many general practitioners do their own D & C's, tonsillectomies, cyst removals, and setting of fractures. In still smaller places he may often do major surgery such as cholecystectomies, appendectomies, hysterectomies, and hernia repairs. The question to be answered is whether this is right. Should the general practitioner refrain from doing any major surgery, or should he undertake routine procedures on selected patients, where few complications are foreseen? Surgery makes practice more interesting, varied, and somewhat more lucrative. In addition it gives the satisfaction of treating the whole patient, and giving complete medical care. On the other hand, it is well known that some doctors attempt to treat beyond their knowledge or training, with poor or even disastrous results. This applies to surgery for the most part, but also to a lesser degree to medical treatment.

At the risk of losing it, the author will stick out his neck and venture an opinion. The reader may or may not agree. I see no objection to the general practitioner in smaller areas doing major procedures such as those mentioned, but only if certain principles are adhered to. Before attempting any procedure, three very important rules must be observed. First, he must be able to diagnose with reasonable accuracy the condition for which he intends to operate, and know thoroughly the indications and contraindications for such a procedure. Second, he must be technically competent to do the procedure. Third, and probably most important, he must be prepared to handle any complication which may arise during or as a result of such a procedure. If these criteria are met, the general practitioner may do major surgery, and perform it well.

To these principles should be added a fourth, also quite important. Only those procedures which are encountered frequently should be attempted. For example, if one saw 25-30 patients per year requiring cholecystectomy, one would be justified in doing this procedure. On the other hand, if one saw only 4 - 5 patients per year requiring bowel resection, one would be well advised to refer these cases to the surgeon.

We realize that the above principles are difficult to achieve in practice. Some doctors are excellent diagnosticians, but are technically mediocre, and for some the reverse is true. The reader may ask who is the judge of whether the general practitioner has these qualifications. The real key to this whole problem is for the doctor to know his limitations, not be ashamed to admit them, and seek help when he is not in full command of the situation.

Inevitably though, some will attempt more than they are capable of, and for this reason many hospital boards have solved the problem by closing the operating facilities to general practitioners for all but minor procedures. Perhaps this is the answer; certainly it is the easiest way. On the other hand, there are many general practitioners in smaller centres who, with adequate training and experience, undertake these major procedures and do them well. If the four principles mentioned above were strictly adhered to, and if the qualities which we have described were present in every general practitioner, there would be no problem. Unfortunately this is not the case. The reader will have to arrive at his own conclusions.

As our last subject, let us consider the ultimate result of all that we have said, namely, some aspects of the *conduct* of the general practitioner. Some we will discuss because they tend to be forgotten and need emphasis, and some because there are problems involved to which the answers may not be so easy to find. As mentioned before, we should have an understanding of the problems involved, even if we do not arrive at a definite answer.

We need scarcely to emphasize that his actions should always be in strict accordance wtih the code of ethics as set down by the College of Physicians and Surgeons, and by the Canadian Medical Association or its provincial counterpart.

The general practitioner must always act discreetly and with the utmost tact and personal integrity, since his every action is discussed, rumoured about, and commented upon. The slightest suggestion of anything which is not strictly on the level will be magnified and greatly damage his reputation. It should also be mentioned that this applies to the doctor's wife, family, and office nurse, who will inevitably possess information which should be carefully respected and guarded. This is more important to the rural or small town practitioner than to the urban doctor, but important for all.

The general practitioner, in addition to dealing with strictly medical matters, may be called upon to give advice on any subject such as personal finances, marital problems, delinquency, etc. He must be prepared to handle them wisely and carefully, preserving the patient's trust and confidence, and avoiding any unnecessary embarrassment. He will be consulted by young people who are anxious for knowledge about or help with such problems as conflict in the home, sex, venereal disease, and very often an illegitimate pregnancy. He should be able to give the understanding and guidance which they desperately need. We regret that space does not permit us to give the individual attention and consideration to these problems which they surely merit. The reader should investigate these issues thoroughly, in anticipation of the time when he may be called upon to deal with them.

The general practitioner will inevitably find that the demands made upon his time are great. He will be doing a large volume of office practice, and in addition hospital work and house calls. It cannot be overemphasized that good organization is essential. With some flexibility, regular office hours by appointment should

be the rule. When this is the case, both patient and doctor know where they stand and much more is accomplished. The doctor should be punctual, and endeavour to treat his patients the way he would like to be treated in their position. As already mentioned, he should be kind and considerate, but on the other hand. he must know when to be frank, and not allow patients to monopolize his life. He should educate them about unnecessary telephone calls, night calls, and unreasonable demands. Unless he does so, he will be enslaved by his patients and runs the risk of ruining his health and family life. Good organization combined with consideration and firmness will effectively prevent this.

Of course, there will always be interruptions and unexpected emergencies which will prevent the doctor from adhering to a schedule at all times. Should this occur, he should endeavour to give notice to those who will be affected that he will be delayed. Physicians must remember that patients have lives of their own and are also busy. Only one who has experienced it knows the exasperation of waiting for several hours for the doctor to see him, instead of at the time of the appointment.

The good doctor should cultivate the spirit of respect for others and above all, humility. This is very difficult to achieve. The doctor is of high intellect, usually in the upper 1 - 2% of the population, and generally adhering to higher standards of conduct than many of his patients. In addition, he commands a high respect in the community. It is therefore difficult for him to avoid sometimes looking down on some of his fellow men. He must ever bear in mind the scriptural observation —"What hast thou that thou didst not receive?"

The physician should be careful not to add to the already heavy burden of illness. Consideration for the patient is the first consideration. The doctor should appreciate the patient's social situation and how the illness and his treatment of it will affect the patient's home life, recreation, and employment. He should do all in his power to understand these problems, and help the patient to work out a satisfactory solution. Consider the case of a doctor in a northern Ontario town who, when confronted with a patient with acute leukemia, felt she needed referral, and sent her away with an injunction to her husband to "take her to Toronto." She presented at the Emergency ward of a large Toronto hospital, her husband having driven her down by car. Actions like this give the general practitioner a tarnished reputation. Fortunately it does not occur often. How much better had the doctor explained to the patient and her husband the need for referral because of better facilities and more specialized care elsewhere, and sent her to a specific consultant in Toronto who was competent to deal with her problem. In addition, he should have arranged a time which was as convenient as possbile for both the patient and the consultant. Certainly this action takes time and effort, but without this consideration the care of the patient is not complete.

In this connection a brief discussion of the attitude and conduct toward chronically ill or dying patients is merited. Much has been said about these subjects, and we cannot hope to do more than give an outline of some basic principles.

In both these cases, the question arises of how much to tell the patient. Considering the chronically ill patient, where the disease is not fatal, but where the treatment is likely to be of a long term basis, (e.g. rheumatoid arthritis, diabetes mellitus), it is probably well to be frank about the long term treatment, yet at the same time dwelling as much as possible on the optimistic aspects of good therapy, pointing out the goals which may be achieved.

With a more serious disease, (e.g. glomerulonephritis, myocardial infarction), where many patients do well but some quite poorly, the physician should again stress the optimistic aspect and point out to the patient that most people with this condition do well. He should avoid a discussion of the pessimistic aspect as it will only upset the patient and often aggravate the disease. Most patients will be satisfied without wanting to know the worst that may happen. However, a responsible and close relative should always be informed of the possibility of a turn for the worse, in order that they will not be unduly surprised if this should occur and suspect inadequate treatment by the doctor. If questioned directly by the patient, the doctor must exercise tact and judgment, considering the emotional makeup of the individual. Probably the best approach is to tell the patient that you fully expect him to recover quite well, but that it is too early to make any definite statement about his particular case. Most patients will be satisfied with this.

When confronted with a hopeless case, e.g. terminal cancer, the problem is much more difficult. Some patients will grasp the situation without being told, some will not ask, but others may confront the physician with a direct question as to whether they are going to die. The doctor should realize that there is no easy solution. If the patient gathers from your investigation and treatment, your attitude, and his care in hospital that his disease is in fact incurable, this is well. He will not put his doctor in an awkward situation, yet the doctor will know that he is fully aware of his prognosis. If the patient does not ask, generally the doctor need not enlighten him. If the patient wishes to retain hope, he should be allowed to do so. But it is important to find out from a responsible relative whether there are matters concerning the patient's worldly affairs which require attention. Many patients are reluctant to settle business affairs, make a will, etc. because to do so is an admission of the possibility of death. The doctor should see that the patient does what is necessary, and this can usually be done without bluntly telling the patient that he is positively going to die.

What about the situation where a terminally ill patient poses a direct question to his doctor concerning his true condition? There are differences of opinion about what should be said, and certainly there is no easy answer. The emotional makeup of the patient will make every case different. The author believes that if a patient who is suffering from a definitely fatal disease and whose mind is sound asks such a question, he deserves an honest answer. It should of course be tempered with sympathy and comfort, with the assurance that everything possible will be done toward symptomatic relief. There is another difficulty here though, for some patients will ask such a question who do not really want to know the truth. However, they will usually betray this fear by their words, their voice, or their eyes; somehow they will reveal that they do not really want to know. Under no circumstances should the physician lie to his patient—this is unethical and unfair to the patient, to say the least. Also, the patient may consciously or unsciously know that he is being deceived, and lose confidence in his doctor. How much of the truth to tell a patient requires all the wisdom, insight, and judgment which the physician possesses, and this is acquired only through experience and a thorough knowledge of the patient. A tactful conversation with the patient is probably the best approach, lying somewhere between an outright lie and a blunt technical disclosure of the facts, and only the doctor who has thoroughly settled the issue for *himself* can properly approach the situation.

In concluding this article, I would like to make a few comments about the profession in general with particular reference to the general practitioner. Medical care has reached heights undreamt of only a few decades ago. Most of the drugs used today were unknown ten years ago, and the development of new diagnostic methods and therapy has been phenomenal. Contrary to what some may say, medical care costs less in relation to present income than ever before, and people are receiving better care. This, few knowledgeable people would dispute. However, there are some things we have neglected in this day of high-powered, ultra-scientific medicine.

Today we are emphasizing the science of medicine, and this is good, but we have to some extent forgotten the art. Patients want to be treated as individuals and as people, not diseases. They want to feel that they mean more to their doctor than just an interesting case. There is a tendency for us to neglect to cultivate the warmth which once existed between patient and doctor. Of course, greater demands on the doctor's time have rendered this more difficult, but we must redouble our efforts to create this feeling by listening and talking to patients and giving them more attention as human beings.

There is often an element of discord between the medical profession and the public. Several things are responsible for this. In my opinion, the doctor has a tendency to become part of the general moral, ethical, and religious decline in our society. All too often he does not exhibit those moral standards which are consistent with his privileged position in society. Rather he conducts himself as do those in the world around him. When a physician flouts the law because he does not agree with it or uses dishonest methods to gain his ends, it certainly lowers him in the eyes of the patient who expects the medical profession to command the respect which he gives it. On the other hand, the patient who is critical of his doctor is often part of the decline and is applying a double standard. The public is demanding more of every public servant today, including the doctor, as the concept of the welfare state grows, and this has contributed to the discord.

Medicine is often regarded as a closed fraternity in which secrecy is the byword which exploits the public because of their need for treatment. While such an attitude is largely unfounded, it is responsible for some people's viewing the doctor with suspicion and resentment. I happen to think that we *do* tend to make medicine too mysterious. We do not take the time to explain to the patient in lay terms what is wrong with him, how we propose to treat him, and what he may expect in the way of recovery. In the past few years people have become better informed about medicine in general via the press, radio, and television, and this has made them more eager to know more detail about their individual cases. When taking a car in for repairs, most of us want to know what is wrong, how serious it is, what can be done, how much it will cost, etc. in as much detail as we can understand. How much more important it must be to the patient when his own body is involved! In addition, the patient who is aware of what we are doing will be much more satisfied and cooperative when he sees the reason for the treatment. This is not always possible, but to the extent that time permits, we should endeavour to answer the patient's questions and tell him what is going on. After all, he is paying for it, directly or indirectly. It is to be regretted that because the demand for medical care exceeds the supply, some of us forget these things.

Much has been gained in the past few years in the realm of medical knowledge and technology. If we can improve our practice of the *art* of medicine and retain and continually advance the *science* of medicine, we shall do well. It will require effort, but the reward will be better relations with our patients and better care for them. For as another has said, responsibility toward the individual patient is the essence of medical ethics.

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Solo Versus Group Practice

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INTRODUCTION

Recent progress in medical science and anticipated future advances have caused some concern to the medical profession and the public regarding medical care by the family physician. More medical undergraduates must be guided into family medicine to meet the changes, and only when they are properly informed about the field will they consider it. With this in mind, I will attempt in the following discussion to outline briefly the two main types of practice of family medicine, with an indication as to what lies in the future.

Definitions

A. *Solo Practice*

Solo practice is a very general term which encompasses three different arrangements:

1. Entirely solo practice: The practitioner is solely responsible for his patients and does not have coverage for his practice other than for vacations.

2. Solo practice with coverage: Although the practitioner bears sole responsibility for his patient's medical care, he has another doctor in the vicinity to take emergency calls when he is unavailable. As will be pointed out later, this arrangement is usually not as well defined as in group practice.

3. Solo practice with sharing of facilities: Two or more practitioners share facilities, such as office, secretary, and nurse, while maintaining independent practices. The coverage for each other's patients is similar to 2 above.

No distinction among these three types will be attempted other than when specific features warrant it, since in all of these, the doctor does not share responsibility for his patients' care except in emergencies and during vacations.

B. *Group Practice*

Group practice is an arrangement whereby two or more doctors share an equal responsibility for the medical care of all the patients in their practice. Income is divided according to a contract. Although they see their own patients during regular office hours, they still have access to all patients' records when covering other members' patients during emergencies and vacations. Group practice is a very flexible arrangement lending itself to many variations, as decided by the participating practitioners.

Before proceeding further, it is of interest to comment on the present division of family practice into solo and group. The most recent documented study is that of Clute in 1963.[4] In Ontario, at that time, sixty-six per cent of family practitioners were in solo practice, twenty per cent were in association with another doctor as employer, employee, or partner, and the remaining fourteen per cent were in groups of three or more. In 1964, Cotton estimated that one third of all general practitioners in the United States were in partnership or group practice, with another one-sixth in less formal expense-sharing groups.[6] Although there is a paucity of recent figures, it would probably be safe to estimate that at least fifty per cent of family practitioners in Ontario are now practising in partnership or groups.

It is apparent then, that many family practitioners, both young and old, are engaged in group practice. The following discussion will attempt to illustrate the advantages of both arrangements.

Establishing a Practice

When a young doctor starts out in practice, he is faced with many problems for which medical school does not prepare him. The economics of establishing a practice are complex. A large expenditure of money for office, equipment, and auxiliary personnel is necessary. At first his practice will usually grow slowly, until his presence in the area becomes known. His income in the first year or so will probably just meet expenses. In solo practice, these responsibilities will be shouldered alone by the young physician. Many individuals welcome this challenge and weather it with little difficulty. However, in some cases, this early period of practice can be discouraging for both the doctor and his family. In this instance then, group practice offers many advantages. The most frequent arrangement is for a recent graduate to accept a salaried position with an established family practitioner. He is then assured a higher income than if he started alone. Office facilities, ancillary personnel, and most important, patients would be already provided. Guidance from the more experienced physician would fill in the gap of knowledge, unfortunately present, with regard to both the economic and medical aspects of family practice. Thus the young practitioner is able to make the most of his energetic years, without encountering the hardships of early solo practice.

Security

One of the major complaints of solo practitioners is the lack of security throughout their professional careers. Personal illness is a great problem for a solo practitioner. Patients will consult other doctors in his absence, and some may not return. Days off, holidays, and opportunities for attending medical conferences will often have to be passed up, since, without continuous coverage of his practice, he will lose it.

Income should not be the determining factor, since it, in itself, is a poor measure of security. In general, solo

practitioners have lower incomes than physicians in group practice, although the highest paid family practitioners are in solo practice. But the latter must work much harder for their money, and in so doing may endanger their health. Income surveys fail to consider the doctor who has no income when he is off ill for a year, perhaps as a consequence of overwork in preceding years. Therefore, many solo practitioners gladly accept a lower income, if they can lower their work load as a result. The problem is that this is just not possible in many solo practices.

With group practice, security is assured. Most arrangements provide for money to be evenly distributed, such that time lost to illness, holidays, conferences, and postgraduate courses does not lower one's income. Members, then, can conserve each other's health. They can take the same time to recuperate as they would advise their own patients to do. Group practice makes sure that "someone holds the fort".

It must also be remembered that most physicians reach an earning peak in mid-career, While the younger member in a group practice earns more money in his earlier years than he would in solo practice, he, at the same time, ensures that the older doctor's income will taper off gradually, rather than precipitously.

Investments of members in a group practice are protected. When a solo practitioner retires, he is likely to find that his equipment is worth only a pittance, his former patients are reluctant to square accounts, and his successor is not about to pay anything for the practice that took him a lifetime to build. On the other hand, members of a group can cash in their assets at an acceptable price, because the men they leave behind have already agreed to it. There are numerous arrangements to compensate a member who leaves the group, all of which should be written in the contract of the group. The commonest arrangement is to pay a certain percentage of the assets and accounts receivable to the departing doctor.

Quality of Medical Care

Earlier in this article, I commented on the availability to the younger doctor of an older doctor for guidance. In solo practice, there are frequently decisions regarding diagnosis or treatment which must be made alone. For many doctors, the lack of easy access to a consultant results in either referring all "difficult" patients to specialists or dealing with the situation alone with increased danger of making an error. In group practice, however, a consultant may be as near as across the hall, and prompt advice can readily be obtained.

With the rapid development of new medical knowledge, the family practitioner must read a voluminous amount of literature to keep up-to-date and should periodically take refresher courses, attend symposia, conferences, etc. However, the solo practitioner is often too busy to read journals or take time from his practice. Furthermore, for those that do have the time, frequently there is a lack of the necessary stimulation to continue their education. On the other hand, group practice provides an opportunity for discussions with colleagues on recent trends in medicine. Such academic discussions are easier to implement, particularly when a younger member is fresh out of university and hopefully up on all the latest diagnostic and therapeutic methods. Opportunities to attend postgraduate refresher courses do avail themselves. Time can usually be found to develop a special interest within a family practice. For example, a doctor who is interested in alcoholism can agree to see all the patients in whom alcohol is a feature of their illness. In a centre where there are hospital family practice units, group members can work in an academic atmosphere one or two mornings a week—another opportunity for continuing education.

In our culture, competition is a powerful driving force to make one perform to his maximum capabilities. Many solo practitioners feel that by practising alone in competition with other doctors, they are stimulated to provide a high quality of medical care for their patients. They sometimes cannot afford to lose their patients to another doctor around the corner. Group practice, on the other hand, offers other doctors within the group to whom patients may go to if they don't like the care given them by one of the members. Since assets are pooled, the group as a whole doesn't lose any patients.

Members in a group practice have been assailed by solo practitioners for providing inferior medical care. There are two important comments to make regarding this statement. The first is that in group practice, members have a built-in incentive to protect their colleagues' interests by providing the best medical care to all patients. This is just as potent a stimulus to high quality medical care as the competition in solo practice. The second comment refers to the concept of "medicare-for-all", which will provide more patients than either solo or group practitioners can handle. Competition will no longer be an incentive, and with the increased work load, the quality of medical care by the solo or group practitioner may slip, a disastrous sequel to such a utopian vision.

Facilities

Easy access to adequate ancillary facilities helps to maintain a high quality of medical care, decrease the work load of the physician, and provide a more efficient medical practice. Many solo practitioners, especially early in practice, and unfortunately even later on, do not have adequate office facilities. Although the expense of such facilities is sometimes prohibitive, too often their absence is due to ignorance on the part of the practitioner. Group practices on the other hand, not

only can afford better facilities, but are more likely to be aware of the newer equipment available.

In a College of General Practice bulletin, in 1954, it was noted that one of the hazards of group practice was the increasing overhead due to such expanded facilities. However, most doctors would agree that the expanded practice, increased efficiency, and increased income will more than compensate for these expenditures, not to mention the better patient care provided.

Working Hours

The tremendous amount of time which many solo practitioners must devote to their practice has always been a source of discontent. Doctors are human, a fact which many patients all too readily forget. The solo practitioner is "on call" twenty-four hours a day. A number of solo practitioners in Clute's survey remarked that it was as much of a strain to be "on call" as actually working, since the phone could ring at any time and interrupt their private life.[4] For those conscientious practitioners who at times found it necessary to make themselves unavailable to their patients, there was concern that their patients did not have adequate medical coverage.

One might think that the solo practitioner who has coverage for his practice when he wants time off would be relieved of excessive working hours. Unfortunately, the off-duty hours for which coverage is obtained rarely involve a whole weekend or evenings during the week, but usually only emergency coverage at night, for which an answering service would be, in most cases, equally adequate. Furthermore, these arrangements are usually sporadic, without a regular established pattern. More than one or two days off is difficult to obtain since the relieving doctor usually is too busy with his own practice to extend more coverage.

Group practice, in theory, eliminates the long hours and obligation of being "on call" twenty-four hours a day. The working hours are more defined, enabling the physician to plan his time with family and friends.

For those physicians who are members of the College of General Practice, group practice enables them to fulfil the one hundred hours a year of postgraduate education that is required. In addition, doctors in group practice have more time to devote to community organizations, and to keep up-to-date with current events, all of which contribute to better medical care for the patient. As an example, physicians in a group of three can provide round-the-clock coverage throughout the year, and for nine months of the year, each man can be exempt from call every third night and every third weekend with one month annual vacation. He will have a good chance of being left in peace each second night and each second weekend as well, when he is merely backing up the man on duty.

Clute's survey revealed, however, that the theory that doctors in group practice work shorter hours is not always the case.[4] He found that there was no difference in the frequency of evening hours off during the week between solo practice with coverage and group practice. There was still a large percentage of doctors in both categories who had less than one night off a week. Furthermore, he found that those who were practising in association with one other physician worked longer hours (68.2 hours per week) than either those who were on their own (44.6 hours per week) or those in solo practice, who arranged for their calls to be taken by another doctor in their absence (50.8 hours per week). At first glance one might interpret these findings, as Clute did, to show that solo practitioners put in fewer hours than those with coverage or in group practice. However, a little more thought will reveal the fallacy in this interpretation. In his survey, Clute defines "working hours" as those actually spent in the office, on house calls, hospital rounds, or in consultation. This definition fails to take into account that these hours are spread over a twenty-four hour day, seven days a week, (in solo practice) whereas, in group practice they are limited only to those hours when the doctor is on duty. When one includes hours "on call" one realizes, as mentioned earlier, that the solo practitioner does spend more time in his medical practice.

The Personality of the Physician

The personality of a physician also determines the type of practice for which he is suited. One of the reasons many medical students put high on their list for choosing the medical profession as a career is the desire for "independence". In Clute's survey, "being one's own boss", was one of the attributes of solo practice which appealed to solo practitioners.[4] They appreciated the freedom to manage their practice without criticism from their colleagues. They enjoyed the responsibility of making decisions without requiring a consultation from another doctor.

Both Clute and Cotton emphasize that failure of most group practices was based on disagreements over methods of treatment, management of the office, organization of the practice, medical ethics, apportionment of the work load, and subservience to an older member.[4,6] Some doctors are "born loners", while others find that the adjustment to a colleague's idiosyncrasies is too difficult without continual friction. Anyone planning to enter group practice should consider the personality and character of his future colleagues, since the success of a group practice depends on constant compromise, cooperation, and confidence in one's partners' capabilities.

Patient Care

The preceding has been a discussion of solo versus group practice as it affects the doctor himself, with only

a few remarks about patient care. It is important to mention briefly how these arrangements affect patients and their medical care.

Solo practice offers some advantages which a group practice does not. The doctor-patient relationship is preserved, such that patients are aware that "their own doctor" shows an interest in them. When they become ill, they "know" their family doctor, have confidence in him, and are secure in the knowledge that he in turn "knows" them. Although some group practitioners do convey this quality, nevertheless, the patient can never be sure that "his doctor" will be available, when needed. Of course there is the other side of the coin. Group practitioners can always assure their patients that they are covered twenty-four hours a day. The confidence that a doctor is always within reach of the phone is of great importance, particularly, if the patient has an illness which may require a doctor at a moment's notice. As has been mentioned, solo practitioners cannot always provide this coverage.

SUMMARY

In conclusion, group practice can be seen to offer security and stability of income; opportunities for continuing medical education; better facilities and more efficiency in carrying out a practice; more defined working hours with time off for family and other interests; and complete, continuous medical coverage for patients. Granted, the independence and closer doctor-patient relationship may have to be sacrified, but this depends to a great deal on the personality of the physician, and, therefore, may be sacrified by the solo practitioner as well. There is still a place for the solo practitioner in small communities, although it is one which is slowly disappearing. In keeping with modern trends, group practice will likely be the arrangement of the future, as the above advantages indicate. At present, however, group practice is only feasible in large cities where both the volume of patients and supply of doctors is sufficient.

ACKNOWLEDGEMENT

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Establishing A Practice

J. M. Osborn, B.A. 6T8

The important decision by a graduate M.D. to become a family practitioner is only the first of many that he will make before becoming fully established. The purpose of this article is to raise and discuss some of the problems that must be considered and to pass on a collection of suggestions and "pearls" from experienced practitioners relating to the methods of practice, choice of location, establishment and organization of an office, and the mechanics, economics, and management of time in running an office.

I) METHOD OF PRACTICE

The first basic decision that must be made concerns the type of practice that you desire. There are three main types to be considered, each with its advantages and disadvantages.

a) Solo Practice

The first type is solo practice in which the doctor "hangs up his shingle" and forms his own practice from scratch or buys one previously established. This type of practice will give you the satisfaction of knowing that your successes or failures are due entirely to your own efforts and that you have full responsibility for your patients and the operation of your practice. You will be able to conduct your practice in the way that you feel is best. However, there must be considerable time spent away from home and family, and denial of recreational and community activities is inevitable. There is also a large financial overhead in maintaining an office by oneself, especially in an urban area.

b) Partnership

The second method of practice involves an association as an assistant or as a partner with a physician already established. For the first couple of years following internship this method is highly recommended, as a young physician can learn much about the handling of patients from a senior, more experienced man in a good up-to-date practice. The arrangement also offers security, along with no overhead to worry about. The main problems in this arrangement usually center around personality conflicts, including misunderstandings about authority, responsibility, and emphasis on such areas as house calls, which may be time-consuming.

c) Group Practice

The third major alternative is to become associated with a group of doctors. Group practice appears to be the pattern for the future, as in this form of practice larger and better office facilities and more efficient utilization of personnel are possible, due to the sharing of expenses for laboratory equipment, nurses, secretarial help, etc. Comprehensive diagnostic and laboratory facilities are economically impossible in any other method of practice. Most clinics or groups are made up of a number of family practitioners and perhaps a representative from some of the important specialities, so that a complete consultation service is available within the organization. The main disadvantages to group practice are the tendency for a decreased personal relationship between the doctor and patient and again, the problem of conflicts among the members of the group. For a more comprehensive discussion on the aspects of the different methods of practice, Mr. Prior's article may be consulted.

II) CHOICE OF LOCATION

There are many factors which govern the decision as to where to practice. Two important considerations are the demand for doctors in a particular area and the age distribution of the physicians already established there. Information about this can be obtained from the Ontario Medical Association.

It is important to go to an area where you will be happiest and where the surrounding facilities fit the type of life you prefer. If you like fishing, hiking, horseback riding, etc., then a rural area should be considered. If you like ballet, cocktail parties, hockey, the theater, etc., then pick an area where these pleasures are available. Often the doctor ends up going where his wife wants to live, but it is also important to pick a location where you want to work and raise your family.

Part of your decision depends upon the availability of hospital facilities, since in many rural areas there are no hospitals for miles. On the other hand, in large centers like Toronto family practitioners do not have admitting privileges in many hospitals, whereas in rural hospitals they may even perform major surgical operations and run the hospital as well.

a) Rural Practice

To settle in a small community, one must like rural people and their way of life. In the country, people are less sophisticated, less demanding, and more intimate, leading to less individual privacy. The doctor is closer to the people, and is looked upon as a leader in the community. He commands the trust, respect, and faith of all his patients and must be prepared to assume this leadership role. Due to his unique education and experience, he may at times be required to act as minister, lawyer, and financial advisor as well as physician. His medical practice will require a broad knowledge of medicine, obstetrics, pediatrics, dermatology, psychiatry, and anaesthesia.

The rural M.D. has much less contact with other doctors in the area from whom to draw support, fewer

doctors with whom to identify, and fewer from whom to learn, any of which can lead to a decrease in security. It is more difficult for the rural doctor to keep up with recent advances, as there is no academic atmosphere to encourage this, and it is difficult to get away from the practice long enough to take postgraduate courses. Nevertheless, for the M.D. who likes the rural way of life, there is a great demand, and many are very happy and content with this type of practice.

b) Urban Practice

The family physician in the urban area does less major work than in smaller centers. However, he is able to organize his time more easily and has greater facilities available to him, including such things as a telephone answering service, good medical libraries, laboratory facilities close at hand, staff rounds at teaching hospitals and convenient consultant services.

c) Location of Office—in the home or separate

Once you have decided on the location in which you wish to practice, the problem is raised whether to locate your office in your home or in a separate building away from the house. Although the present trend is towards having the office away from the residence, home offices are still common in the country. The office and residence are usually separate in Western Canada, but as one moves east, there are more and more physicians who have the office as a part of their home.

The advantages of having the office and home under the same roof concern reasons of economics and convenience. There is not the extra cost of buying and maintaining another building, and much of the house becomes income tax deductible. Much time is saved in going and coming to and from the office, and it is easier to get a quick meal when at home. Many female practitioners prefer this arrangement, as it enables them to solve any problems with the babysitters or "house staff" quickly and conveniently should they arise. Another major factor for those who like to sleep, concerns the middle-of-the-night calls. With the office in the house, it is very convenient to have the patient drop by, and you can properly see any emergencies without having to leave the warm and comfortable confines of home.

The disadvantage of having the office in the house concerns the invasion of privacy. Patients may become too personally involved with their doctor, which in some cases may annoy those physicians not wishing to establish such an intimate relationship. It is more difficult to get away from the problems of the practice when you want to, i.e. one cannot escape from patients and their complaints as easily as when living across town from the office. This depends a great deal on the type of person you are, as it would bother some more than others.

It is then quite obvious that the choice of location for your practice and the choice of office and home arrangements are personal decisions that include both you and your family and depend upon what will be the happiest situation for all concerned.

III) ESTABLISHMENT OF THE OFFICE

The basic layout of the office depends on the type of practice in which you are engaged, i.e. solo or group. For the solo family practitioner, the office should consist of a reception area (never call it a *waiting* room as patients do not enjoy the feeling that they are waiting) with facilities for a secretary or receptionist, a consultation room, a small laboratory area, and at least three examining rooms. In furnishing the office, it is unwise to start off with too much and too lavish furniture, but the office should be comfortably and attractively furnished. It is best to begin with the bare essentials, then expand as the need develops, as many find that they do not require all the equipment with which they started out. However, it is wise to have a plan which will allow for expansion when the need arises.

a) Reception Room

It is worthwhile to invest in comfortable chairs for the reception room, especially if patients are required to wait any length of time. One or two rocking chairs should be seriously considered, as they are appreciated by women with babies and small children. If you are punctual in your appointment schedule, five or six chairs will suffice; however, if you tend to be tardy, you will need more. For the children, set aside a "play area" of the room with a small table, chairs, colouring books, pencils, crayons, chalk, toy cars, comic books, etc. The adult patients can forget their anxiety or boredom with good up-to-date or even ancient magazines (e.g. old National Geographics).

It is very practical to use high gloss paints with a washable surface for the walls and to have a good serviceable tile floor. The colours in the reception room should include bronze, yellow, orange, or green along with some plants to add warmth. Good lighting and piped-in music (free of commercials) puts the finishing touches on a room in which patients won't mind spending many pleasant hours waiting for you to see them.

b) Examining Rooms

Most physicians find that they need at least three examining rooms to avoid wasting time. One room should be equipped for obstetrical examinations, one for pediatric, and one for general use. Each room should be properly outfitted with instruments, etc. to avoid time lost running back and forth from one room to another. There should be a stethoscope, ophthalmoscope, otoscope, tape measure, scales, manometer, tuning forks, and a small dressing kit in each examining room. It is also helpful and time saving to have close at hand a writing surface with prescription pad, history forms, correspondence material, and desk calendar.

The pediatric room should have a baby scale, diet charts, growth charts, etc. It is also a good idea to have some type of a rail on the examining table to prevent the baby from rolling off onto the floor, as this sort of an accident is frowned upon in certain circles and may lead to the occasional legal suit.

c) Consultation Room

The consultation room does not need to be large, but it should be constructed so that there is absolute privacy. The furnishings should be arranged so that the doctor and patient are not on opposite sides of a large desk. This set-up imposes a large physical barrier between the two involved and inhibits the type of close, friendly relationships towards which you should always strive.

d) Laboratory

Some part of the office should be set aside as a laboratory and storage area. There should be a small autoclave in the lab for sterilizing instruments used in any minor surgery performed in the office. There should also be equipment for doing urinalyses and routine blood tests (a good microscope is essential). Other equipment that is basic for the office of a family practitioner includes disposable needles and syringes, specula for vaginal examination, sigmoidoscope and proctoscope, electrocautery for cauterization of the cervix, biopsy forceps, materials for pap smears (slides, sticks, cytospray) adequate lights, catheters for acute retention, surgical equipment for lacerations, and the basic drugs which are listed in the Vademecum for the office and bag.

With these basic points in mind for equipping an office, it is suggested that you visit some previously established offices and look for other ideas.

IV) RUNNING THE OFFICE

Once you have all the "machinery" to make up an office, the last problem is to make it all run efficiently.

a) Legal Prerequisites

Before you can engage in the practice of medicine, it is necessary to register with the College of Physicians and Surgeons. You should also familiarize yourself with the Code of Ethics of the College governing professional conduct. An announcement in the local newspaper that you are commencing practice at a certain location is considered ethical. Cards announcing this fact may be distributed to the local physicians but to no one else. It is a courteous custom to call personally on the physicians in the area and advise them that you are starting practice, and application for membership in the local Medical Association should also be made. Application must also be made for hospital privileges, preferably at the one closest to your area of practice.

It is important to join the Canadian Medical Protection Association before starting practice. The number of suits against doctors for malpractice has increased, and it is a wise precaution to have the fullest protection against such an eventuality.

b) Answering Service

It is necessary that you have some type of telephone answering service, whether it is your wife, secretary, or a professional one. This must be covered 24 hours a day, and the answering service should always know where to contact you or, if you are away, whom to contact in your absence. An easy way to lose patients is to render yourself inaccessible in an emergency situation, when other doctors are available to assist the patient.

c) Office Hours

In developing an office routine, the practice is governed much by local custom. In some areas it is still expected that office hours will be posted and that the doctor will be present at those hours. Now it is becoming more common to make office consultations by appointment as this makes much better use of both the doctor's and the patient's time. Office hours are usually held in the afternoons and some evenings. It is a good habit to keep appointments on schedule, although emergencies inevitably occur.

d) Medical Records

It is most essential that good medical records be kept. A system for filing case histories and correspondence should be set up as soon as you start practice (this is especially important in legal actions) with provisions for expansion at a latter date.

Some family physicians keep a separate file for each patient, while others keep the file of each member of the family in one folder, until a member moves, is married, or is deceased (when it goes into the "dead file"). It is also important to keep a separate file for confidential patient reports and consultations on such subjects as V.D. cases, psychiatric reports, etc. Much trouble was raised after a female patient accidentally happened to see in her family folder that her husband had confided in a psychiatric consultation that if he had the chance to marry his wife again, he wouldn't.

Many feel that all records pertaining to the practice (medical and financial) should be kept in a fireproof safe. However, these safes are very expensive, and if a fire did occur, there is a good chance that the safe would burst open and be destroyed anyway. Therefore most doctors take a chance and use only regular metal files. The best thing to do is to locate in a fireproof building.

e) Office Aides

It will be necessary to hire at least one full time secretary-receptionist. Later on you may find that you will

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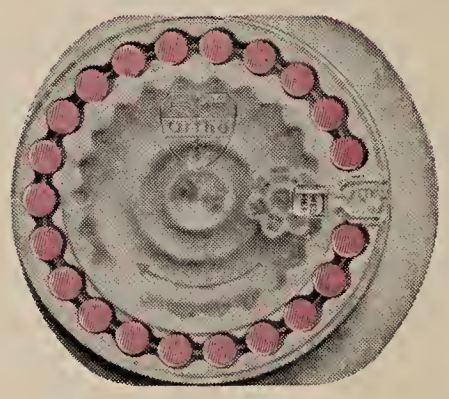

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need additional part time help during the busy office hours to help you prepare patients, do simple lab tests, etc. The selection of a secretary is a very important decision, as she handles all your accounts, money, appointments and literally runs the office. She should be someone that you know will keep all office matters confidential, and she should definitely be bonded (have past work and police records thoroughly checked). It is very easy for a secretary to pocket money for the payment of services rendered without your knowledge. There are many ways of doing this. Some overcharge patients, record the regular rates, and then keep the extra cash for themselves. Some are so clever at these practices that many auditors are completely fooled and don't catch these people for years. This has happened to many doctors right here in Toronto in recent years. You must more or less rely on their honesty and integrity, as you don't have the time to check up on them. If you can get a nurse to handle the job, this is to your advantage, as she can better assist you in minor surgical procedures in the office, give needles, etc. It is not an absolute requirement, but it helps if she is pretty and cannot run very fast.

f) Economics of an Office

The economics of running an office need not be complicated, but must be complete and well organized. It is suggested that you seek the advice of an accountant whom you wish to handle your records, and follow his method of bookkeeping. He should audit your books and make out your income tax returns every three months.

Though the forms may vary, there are four basic elements which should be a part of any good financial recording system: (1) a daily listing of payments and charges, (2) individual records of patient's payments and charges, (3) a permanent ledger into which daily financial information is placed along with records of income and expenditures, with a detailed description of money disbursed, and (4) a petty cash system within the office for payment of small bills from day to day.

Prompt billing encourages prompt payment. It is customary to send bills at the end of the month and follow up conscientiously on unpaid bills, as the longer the payment is delayed, the harder it is to collect. The Fee Schedule of the Ontario Medical Association is the guide in setting fees.

Many physicians keep the patient's financial records separate from the medical records. It is felt that if you are aware that a patient has not paid his bills, it may subconsciously affect your further management of the case. However, it is important that you know the overall financial status of your patients, as this will temper your prescription writing. Often patients cannot afford drugs, and in many instances giving these patients your sample drugs may prevent severe complications or even save a

life. It is a good idea to make sure that your patients have OHSC, OMSIP and/or other insurance coverage.

g) Organization of Time

As your practice enlarges, you will become more conscious of your time. Millard K. Mills, a management consultant from Waterloo, Iowa, points out that if you spend 40 hours a week with patients, earn an average of $25 an hour, and can increase your hourly average $2 an hour, you will increase your annual gross income by $3,840. Many doctors have found that they can increase their income by over 20 percent by reorganizing old habits. The following suggestions come from an article by Mills in the Medical Economics Journal.

Set appointments to the minute, not at regular intervals. From past experience you know you usually see Mrs. Nelson for 5 minutes and Mr. Draper for 20 minutes. So why schedule appointments at 15 minute intervals? Try and stick to your appointments as much as possible. You should have a clock in each examining room, placed directly behind the patient as you face him. Thus, you are continually reminded of your schedule without having to look at your watch and risk offending the patient. In addition, a typed schedule of daily appointments in your consultation room is helpful. It is also a good idea to allow a certain block of time in your schedule for talking to patients on the phone so your aide can inform them approximately when you will call them back.

Streamline your mechanical, verbal, and written systems in your office. For instance, dictate histories; you can talk faster than you can write. Also, complete histories as you go along; you can do it faster when it is fresh in your mind. Supplement verbal discussion as much as possible with printed forms for standard orders such as diets, etc. A patient only remembers about 10 percent of what you tell him anyway, and the other 90 percent will have to be repeated. Therefore, this forestalls phone calls at a later date, and valuable time may be saved.

Dr. Samuel C. Southard of Atlantic City, New Jersey, emphasizes the importance of delegating work to aides, such as filling out routine forms after you have written in the abnormal findings, ordering and maintaining supplies, screening phone calls (many can be answered with a simple yes or no answer) and routine lab work such as Hbg, WBC, and urinalysis. They can also be easily trained to place phone calls while you are on a second line, thus avoiding busy signals, that familiar message from the maid that "madam is out", and the toddler who answers the phone only to waddle away from it to do something else.

In employing these methods to cut corners and make better use of time, it is important that you do not give your patients the feeling that you are rushed and in a hurry to get him out of your office. The following are some points by Dr. Michael J. Moore of Roanoke, Va., from his article "How I Speed Up Without Seeming To" also in the Medical Economics Journal.

Always play it cool with patients, even when in a hurry. Employ such tricks as leaning back in your swivel chair, putting your hands behind your head, and talking more slowly and distinctly than usual. If you lead the patient to believe that you seem unhurried, the average patient won't notice that you're moving with haste. On the other hand, if you give him twice as much time but talk quickly and dash around the room, he will think that the visit was a hurried one. Also, don't take phone calls while with a patient, as this makes you seem rushed, and the patient feels neglected.

You can speed up your hospital rounds and, at the same time, give your patients the feeling that you are spending more time with them by sitting down and writing your progress notes and orders at their bedside. The average patient is completely unaware of the time a doctor spends at the nursing station in his behalf and thinks that a hospital visit charge is entirely for the brief time spent at the bedside. This way he can see what you are doing for him, and it takes no more time than just "shooting the breeze" with the patient for 2 or 3 minutes. The result combines two jobs—bedside visit and chart work—into one. Sitting down at the visit makes it seem not only unhurried but also longer, and in addition it provides a chance to rest your feet for a few moments.

V) CONCLUSION

It is hoped that this article will be useful to those of you who are contemplating family practice. The main aim of this presentation has been to place before you some of the issues, decisions, problems, and answers in establishing and running a practice that you will have to face, but are not given in any formal way in medical school. It is also hoped that you now have a basic idea of what is involved and will be better equipped to establish your own personal practice.

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Postgraduate Training For Family Practice

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Recently much has been written in both the press and medical literature concerning the role of the general practitioner in the face of the increasing tendency toward specialization and sub-specialization. It has not been uncommon to hear the remark that general practice is a "thing of the past". More people seem to be seeking a specialist for their various problems. Even at our own medical school it has rarely been my experience to come in contact with a general practitioner, and yet each year many graduates plan to enter general practice for a few years, if not for a lifetime. It may be true that the role and prestige of the general practitioner has been declining in the past decade, but I still fecl that the desire and need of people to have their own family physician is with us. It has been reported that eighty-five per cent of conditions confronting the family physician can be adequately treated by him, without need of referral. For these conditions most people want a doctor who is fully aware of their family situation, who knows and keeps their medical history, who is willing to provide full medical care at all times, and who can refer them to the appropriate specialists for consultation as the need arises. At the same time they want a competent, well trained family doctor and would like to think of him as a specialist in family practice, a discipline in its own right.

Since the establishment of the College of General Practice in 1954, members of the College and educators from other medical institutions have been increasingly concerned about the lack of educational facilities for training medical graduates to enter family practice. Realizing that the preparation of medical students to enter general practice has not kept pace with other advances in medical education, thcy set out to develop special postgraduate training programs. Before these programs were established the commonest way to learn family practice was to associate with another doctor or a clinic group. This is still being done and probably will continue; however, certain problems are encountered if the young graduate wishes this to be a rewarding learning cxperience. Apart from the difficulty of finding an established practitioner who has the *time,* the *ability,* and the *desire* to teach, we know that individual physicians or groups seeking another doctor for their practice are usually looking for relief from patient load, not added demands on their time. In addition no recognized degree or diploma is derived from experience gained in such a manner.

How then does one obtain good accredited preparation for general practice? Today the best method is provided by Certification Courses in Family Medicine, since the day has gone when the responsibility of the medical schools to the undergraduate was to adequately prepare him for general practice. Such training has become secondary to the provision of a basic medical education and the teaching of broad principles in the fundamental sciences. From this the graduate has a firm foundation with which to step into the specialty training of his choice and now, if he so chooses, he can enrol in one of three postgraduate residency programs in general practice. These, after three years, will provide him with a Certification in Family Medicine.

It will not be the purpose of this article to fully evaluate the individual programs since they are not yet three years old and no one has completed any of them; however we shall present a brief outline of the aims of the family practice courses, along with a description of their content, and try to examine the possible significance — to the physician and the public — of Certification in Family Medicine.

PROGRAM ENROLMENT REQUIREMENTS

At present, enrolment is generally open to graduates from any recognized medical school. At the conclusion of the three year course a formal examination must be passed to obtain Certification. The exact details of the examination have not been finalized but the College of General Practice will probably set up its own examining board.

EDUCATIONAL AIMS OF CERTIFICATION COURSES

Each centre offering the program has a family practice clinic or teaching unit in which the conditions of general practice are closely simulated. Much of the resident's time is spent in the unit where he can best appreciate the conditions of general practice. The model family practice units generally consist of office type arrangements not unlike those of any practicing physician. Families are encouraged to bring all their medical problems to the clinic where preferably one resident will be responsible for their total health care. If assistance is required, other practising physicians are available within the unit for consultation. Since the units are in hospital buildings, a complete diagnostic armamentarium including laboratory and radiological facilities is readily accessible.

The aims of teaching within model family practice units are manifold and are spelled out by the College of General Practice. The units must provide comprehensive and continuing medical care for a normal socioeconomic group of the community if they hope to demonstrate to the resident all aspects of general medicinc. The College emphasizes *family* practice within the units, with

full utilization of all para-medical personnel. This includes the use of all health resources in the community — social, preventive, diagnostic, therapeutic, and rehabilitative, thereby demonstrating the economical use of the physician's time and energy.

Within the unit the resident will be taught to appreciate the limitations of his competence and the criteria for consultation and referral of patients. Also, it is the aim of the College that here the resident will learn to appreciate the most economical use of hospital beds by stressing excellent ambulatory care, outpatient investigation, and the preventive aspects of medicine in maintaining community health. It is hoped that the "art" as well as the "science" of medicine will be taught, with patient oriented rather than disease oriented teaching.

THE PROGRAMS AVAILABLE

1. CALGARY GENERAL HOSPITAL PROGRAM

In Calgary, the first year of the three year program is centered in the 1,000-bed Calgary General Hospital. This first year fulfills provincial licensing requirements and is similar to the conventional one year rotating internship, having introductory rotations in medicine, surgery, paediatrics, obstetrics and gynecology, psychiatry, and emergency treatment. The subsequent 24 months emphasize diagnostic and therapeutic techniques, a deep understanding of the patient as a human being, and a delineation of the criteria for intelligent referral to consulting colleagues. The core of the course centres around internal medicine.

A Family Practice Teaching Centre supplements the teaching program. Residents spend increasing amounts of time in this centre where they should encounter day to day problems of family practice, and assume personal responsibility for specific families during the three years of their training.

The Calgary program allots total time spent in the various departments as shown below:

Internal Medicine	6	mos.
General Surgery	6	mos.
Obstetrics and Gynecology	5½	mos.
Paediatrics	3	mos.
Psychiatry	2	mos.
Neurology	1	mo.
Orthopedics	2	mos.
Physical Medicine	1	mo.
Urology	1	mo.
Lab. Procedures	1	mo.
Anaesthesia	2	mos.
Elective	3	mos.
General Practice	2½	mos.

—consisting of 2 weeks with a General Practitioner
—1 month in a rural practice
—1 month in a *locum tenens*

A considerable amount of time is spent in an assigned doctor's office. This permits the resident to become acquainted with many of the common medical problems which rarely warrant hospital admission. The "office" training is invaluable, in that problems encountered in the office will constitute the bulk of his future practice. It is felt that the experience gained by allowing the resident to spend one month with a preceptor in a rural practice should acquaint him with medical problems, procedures, and techniques seldom seen in large hospital centers, and sometimes unique to rural practice. One month of the program is in a *locum tenens,* where the resident really does general practice on his own. A *locum tenens* is a period spent in a physician's office when another doctor (usually a young graduate) assumes full responsibility for patients while their physician is absent from his practice for any reason such as illness or holidays.

2. ST. JOSEPH'S HOSPITAL PROGRAM

In London, Ontario, the Family Practice Training Program is under the joint sponsorship of the Faculty of Medicine at the University of Western Ontario and the College of General Practice. The training is based at St. Joseph's Hospital, a 600-bed teaching hospital. The first year of the program has been approved by the College of Physicians and Surgeons of Ontario for licensure. Nine positions are available each year for beginning this program.

Portions of the training are carried out in other hospitals in the area. *Locum tenens* and preceptorship experience is provided in both urban and rural areas. As with the other programs, a comprehensive teaching program is provided through seminars, family practice rounds, and group discussions, as well as practical experience on the wards. Research is also encouraged.

There is a twenty week elective period in the curriculum which enables the trainee to delve more deeply into a branch of medicine in which he takes special interest. This affords flexibility to the program. For example, the doctor who wishes to practice in a smaller community and administer anaesthetics may spend this time in anaesthesia. In this regard, the Canadian Anaesthetist's Society urges all residents in the program to study anaesthesia during their final twenty weeks elective period.

A Family Care Unit run by family practitioners has been established at St. Joseph's Hospital where residents have the opportunity to gain practical experience throughout their training. Each resident has his own patients and is responsible for giving them comprehensive medical care. As with the other two programs, the trainee should be well qualified for comprehensive family practice when he finishes the three year curriculum outlined below.

Internal Medicine	32 weeks
Surgery, Specialties and Physical Medicine	14 weeks
Gynecology	8 weeks
Obstetrics and Neo-natal Paediatrics	20 weeks
Paediatrics	18 weeks
Family Practice Clinic	16 weeks
Family Practice Psychiatry	8 weeks
Anaesthesia	8 weeks
Locum Tenens	8 weeks
Elective	20 weeks
Holiday	4 weeks

3. MC MASTER UNIVERSITY SCHOOL OF MEDICINE

In 1967 the Faculty of Medicine at McMaster University introduced its three year Family Practice Program. The course is, in fact, the first educational program to be launched by McMaster's newly developing medical school.

CURRICULUM:

Family Practice Unit	14 mos.
Paediatrics	4 mos.
Medicine	6 mos.
Obstetrics and Gynecology	4 mos.
Surgery and Emergency	4 mos.
Research	2 mos.
Option	2 mos.

The McMaster program is similar in format to the other two described, with emphasis on personal involvement in the continuing care of families. It is readily seen that one-third of the residents total time is spent in the family practice unit. Such a period of exposure to family practice should certainly enable the doctor to cope with almost any problem that he may encounter as a general physician. The remaining two thirds of the resident's time is allotted to the specialties, with particular emphasis on their application to family practice. The in-hospital practice, supervised by the various specialists is done at the Hamilton Civic Hospitals (1494 beds, 150 bassinettes) and St. Joseph's Hospital (720 beds, 135 bassinettes).

Exposure to family practice is provided through the University Clinic, a newly established unit at the Henderson General Hospital. The author has visited this clinic and can attest to its impressive facilities. In addition, it is physically well designed for convenient and efficient handling of patients. As well as teaching family medicine in this unit, the role of community para-medical services, economics, office management, and ethics of medical practice will be stressed.

THE FUTURE

It is hoped that the foregoing descriptions of the three programs available for Certification in Family Medicine have been informative, and that the reader appreciates that these graduate courses are well planned and designed to adequately prepare a doctor for family practice.

You may ask, "What will Certification mean to me in my practice?" Perhaps one of the most gratifying results to the physician will be the satisfaction of having completed a comprehensive program giving him the confidence to provide primary, continuous, and complete medical care to the family unit. Certification will no doubt lead general practice to greater heights of usefulness, and for the general physician who is presently often looked down upon by some members of the profession and even the laity, there will be greater prestige in the sense that he too will be a specialist. Eventually this should lead to increased demands for certified family physicians by clinics seeking new partners. Here the certified doctor will probably command a greater salary, as he will undoubtedly have more to offer a clinic and its patients than a doctor having completed only a junior internship. Also, hospitals will likely grant more privileges to the certified family physician who will surely be more knowledgeable than the physician who has the same number of years of experience gained by working in a clinic.

It is the feeling of Dr. D. I. Rice of the College of General Practice that graduate training programs in family medicine will eventually be available at all medical schools in Canada. He even predicts that the day will come when a doctor will be required to hold either a Certificate in Family Medicine or a Fellowship in one of the specialties to practice Medicine, and new membership in the College will be restricted to physicians having completed a Certification Course.

In the line of financial reward, there is a definite possibility that an increased fee for services will be granted the Certified Family Physician.

Finally, it is hoped that the whole medical profession will benefit in the near future with the emergence of the Certified Family Physician. Most important, Canada will be provided with the best trained family physicians possible, and it is to this objective that the College of General Practice is dedicated.

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The Role Of The Physician In Industry

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INTRODUCTION

Industrial medicine is that branch of medicine that deals with the relationship of man to his occupation for the purpose of prevention of disease and injury, and the promotion of optimal health, productivity, and social adjustment. Although the application of medicine to occupational problems is as ancient as the practice of medicine itself, the appearance of industrial medicine as a distinct subspecialty has been only a recent event. In spite of its being a relatively new field, it has become extensive and widely recognized. This article will present a brief discussion of the training, responsibilities, and working conditions of the physician practicing in the industrial setting.

Every practicing physician will, at one time or another, be required to examine or treat an industrial worker, especially the doctor in general practice. In fact, many patients will present with findings directly related to their employment. Consequently a basic knowledge of industrial medicine and an understanding of the workmen's compensation laws is important to all practitioners.

I TRAINING

As a result of its fledgling state as a distinct subspecialty, there is as yet no definite course of training for industrial medicine. However, there are some special requirements for success in this field. Graduation from a course in industrial hygiene, as well as training in public health and preventive medicine, is of benefit to the physician planning an industrial practice, and indeed may be required by the company management. Accredited courses in occupational hygiene are now offered in many modern medical centres. It must be realized that these courses do not in themselves constitute adequate training for industrial practice. A broad spectrum of training is necessary, coupled with special training related to the type of industry in which one intends to practice. In addition, most industrial plants prefer a doctor who has spent a few years in practice.

A knowledge and understanding of the problems peculiar to industry is essential. Such problems would include the following:

Trauma

Industrial accidents are the single most important cause of lost time, and consequent loss of income for both employer and employee. The industrial practitioner must be fully conversant with the diagnosis, management, and epidemiology of all types of injury in his branch of industry.

Inhalants

The physician must have a thorough knowledge of the noxious agents used or produced in the relevant industrial processes. Familiarity with the presentation and management of resultant disabilities is essential. Many industrial processes produce both particulate and volatile air pollutants. These include toxic metals, fumes from industrial solvents, chemical asphyxiants, various dusts, and other chemical irritants. The industrial physician must be able to deal with these agents and their effects, not only from the point of view of long-term exposure effects on the company employees, but also the effects of such agents on the community as a whole. Such knowledge combined with epidemiological studies among his industrial patients will enable him to act as an authority for the institution of pollution prevention and control programmes for the benefit not only of the company, but also of the community.

Noise Levels

Hearing loss is compensable if it can be proven to have originated from the individual's occupation. The physician in industry should be familiar with the dangers of prolonged high intensity sound exposure and know, for example, that sounds in the 300-600 cycle band with a noise level of 85 decibels or higher require the initiation of noise exposure control and periodic hearing tests. Prophylactic measures, such as equipping the individual with ear "muffs" may be attempted, or a change of job may be necessary.

Radiation

Although the number of industries working with radioactive material is small, and most follow the safety regulations of the Atomic Energy Commission, the industrial physician in a plant utilizing such materials must have a sound knowledge of radiation hazards, and should institute programmes to ensure that over-exposure does not occur.

Dermatitis

Studies of the occurrence of dermatitis in industry indicate that about one per cent of all workers are afflicted with one or another kind of occupational dermatosis, and that fifty-five per cent of all occupational diseases are of this nature. The causes include mechanical trauma, physical irritants, chemical irritants, and biological causes. Treatment, other than medical management, must also concern the protection of other employees, and temporary or permanent transfer of the affected individual away from an occupational environment that will cause or exacerbate the lesions.

II RESPONSIBILITIES

Being in essence the director of all health services available to company employees, the responsibilities of the industrial physician are wide and varied. His most important function is to set up and maintain a health programme within an industrial context. Such a plan should include the following features:

Medical Examinations

Regular assessment of the employee's health is the responsibility of the company physician. Basically, there are three types of medical examination that will be carried out:

(a) *Pre-employment Examination*

Since the physician's assessment of an employee is a major factor in hiring and placing him, the doctor must be fully aware of working conditions such as equipment, hours of work, ventilation, etc. This is because his examination must be directed toward the detection of defects or predisposing factors that may be aggravated in the particular environment to which the potential employee will be subjected. The employee assessment should, for example, include a careful evaluation of the musculo-skeletal system in an industry that relies on heavy labour, an audiometric test where the noise levels are potentially damaging, and a chest X-ray if the working environment includes dust-laden air.

(b) *Periodic Examination*

Since defects directly attributable to the harmful effects of employment are a possible source of future dispute between the workman, the company, and the Workmen's Compensation Board, it behoves the physician to detect any progressive lesion in its earliest stages so that evaluation and therapy may be instituted. The examination is of the same nature as the pre-employment examination, and is directed towards the detection of any latent disease, whether occupational or otherwise. They are usually performed on an annual basis. These examinations also afford an opportunity to study the epidemiology of industrial injuries and disease.

(c) *Special Examination*

Whenever there is regular and prolonged exposure to noxious agents, such as lead, mercury, or radiation, or when a given job is particularly hazardous, such as that of a crane operator, more frequent examination is necessary. This would include only one particularly relevant examination such as a urine test for lead, or special eye tests.

Other Areas of Responsibility

Occupational Injuries and Disease: A wide variety of medical problems arise in industry, necessitating an extensive knowledge of surgery, toxicology, dermatology, and psychology. These were elaborated upon in our section on training, and will constitute the major part of the physician's work.

Non-occupational Injuries and Disease: Although the company physician does not provide medical care for non-occupational disabilities on a regular basis, he will be required to deal with them on some occasions such as—

(a) In an emergency: Care will be given on an emergency basis until the employee is placed under the care of his personal physician.

(b) For minor illness while on the job: The industrial physician will provide symptomatic care or first aid so that the employee may continue his work that day and then consult his own doctor.

In an isolated area where there are few physicians or medical facilities the company through its physician may provide medical care not only to the employees but also to their families.

Rehabilitation: The problem of rehabilitation is a serious one, and includes both physical and mental disability. The doctor's loyalty is divided between his own obligations to the company and his duty to the employee as a patient. The management insists that the employee return to work as soon as possible, while the employee often attempts to remain off work on compensation for as long as possible. Often it is possible to alter the employee's job, or place him in another job that may assist in his recovery and reduce the period of convalescence.

The disability may not be directly attributable to the patient's work. The problem of alcoholism lies in a nebulous zone between occupational and non-occupational illness. No matter where the causation may lie, it is an illness with which the industrial physician must deal constantly.

Prevention: As well as keeping informed of changing conditions in a dynamic industry, the occupational physician usually serves on his company's safety committee in an advisory capacity in order to help devise and implement regulations based on his reports of previous industrial accidents and diseases and his knowledge of the need for safety equipment. In addition, he helps to educate the employee through advice offered during medical check-ups, and through the distribution of pertinent pamphlets and posters.

III TYPES OF INDUSTRIAL PRACTICE

Part-time Positions in Industrial Medicine:

Since most companies employing less than 500 people cannot retain the full-time services of a physician, there are many opportunities for the young man beginning a general practice to augment his experience and income through part-time and "on-call" services to the com-

pany. Furthermore, the part-time industrial practice represents a large pool of potential patients; not only the employees themselves, but their families as well. Part-time industrial practice is not just for the young physician, however. It is an excellent field for the doctor considering semi-retirement with regular hours and an assured salary.

With regard to remuneration, the part-time physician may elect to be paid by the company, in which case he receives approximately $15 per hour for time spent at the plant, and a retainer fee for being on call. The company will collect and keep any medical fees paid by the Workmen's Compensation Board. If the volume of patients is large enough, he may wish to work on a fee for service basis, in which case the doctor bills the Workmen's Compensation Board directly, the company merely paying a retainer fee and providing facilities for him.

The disadvantages of part-time industrial practice are few. There is no opportunity to get involved in large scale programmes such as epidemiological studies, or to assist in accident prevention and plant hazard survey programmes. Only a superficial acquaintance with factors predisposing to accidents and occupational disease is possible. If the doctor has a real interest in these things, he should probably take up full-time industrial practice. As his general practice becomes more extensive, the young physician may find his industrial position more of a burden and less of an advantage.

Full-time Positions in Industrial Medicine

The physician may well be attracted by the challenges of full-time industrial work. The advantages of regular hours, usually with weekends free, and minimal night work, are obvious. In addition, the physician working for a large industry is invariably supplied with the most up to date facilities available, as well as readily available services such as physiotherapy, X-ray equipment, and a laboratory. The company physician is provided with a competent staff in the form of nurses and secretaries. Thus he has no office or staff to maintain.

Opportunities to carry out original research in an industrial context are many. The company physician has available a population that can readily be studied and therefore he need not conduct his surveys on a select sample from the population at large. Furthermore he has less difficulty eliciting the cooperation of chosen individuals than do other investigators. His study may be easily and accurately conducted because he has a stable, healthy population already well-defined and surveyed in the extensive records kept by the company on each employee. He may study diseases unique to industry, or he may study in his population something which has no connection with their work.

Although more recent surveys are not available, a study of income conducted by the Royal Commission on Health Services in 1960 indicated that remuneration in industrial medicine compares favourably with other fields in medicine. At present the full-time industrial physician may expect an annual income of $15,000 - 25,000, depending on experience and the number of employees for whom he is responsible.

However, there are a few rather important disadvantages to full-time industrial practice. Because he is a paid employee of the company, the doctor might become subject to pressures from the management. In practice this is generally not a valid criticism, because most industries are well aware of the need for an active industrial health programme, and make every effort to assist their medical staff. Another disadvantage of industrial practice is the fact that the physician is limited in the number and type of diseases with which he comes into contact. Most of his work concerns trauma or dermatitis, and he will see very little internal medicine. In this respect industrial medicine merely reflects a disadvantage which is inherent in every medical specialty. In addition, it might be claimed that the conduct of routine medical examinations becomes monotonous and uninteresting, but it must be remembered that the physician in general practice also conducts many routine examinations.

CONCLUSION

In concluding, we may say that although a specialty still in its embryonic stages, industrial medicine is a rapidly expanding field offering wide interest to both the young and the established physician alike. It is a challenging specialty commanding respect and remuneration equal to any other area of modern medicine, and will become ever-increasingly important in a world that is becoming more industrially oriented.

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Medicine In The Arctic

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It was Robert Service who first introduced me to the Canadian northland, and although I am unable to recall the exact text of many of his poems, their excitement and intrigue remain with me still. Thus I was very pleased when in August of 1967 I was afforded the opportunity to travel for 3 weeks in the Northwest Territories and observe the practice of medicine in this region. During this time I talked to physicians from Whitehorse, Yellowknife and Frobisher Bay and visited hospitals in Inuvik and Yellowknife and nursing stations at Fort McPherson, Tuktoyaktuk, Coppermine and Cambridge Bay.

Today a great deal of the medicine which the urban physician sees must be referred to the specialist. However, Arctic medicine of necessity remains the general practitioner's bastion. It is my purpose to outline the nature of medical care in this region, beginning with a short history of its present structure. Some space will be devoted to the incidence of common diseases of the area and following this, a review of the birth and death rates. The north is not a place for the irresponsible and it is with this view in mind that the special problems associated with this work are discussed. Thus, I hope to acquaint the reader with some of the difficulties, frustrations, and rewards of Arctic medicine and to give you my impressions of the challenge of the north.

Until the mid-Nineteenth Century, medical practice in the Arctic was virtually non-existent. Ship surgeons, accompanying explorers on their sailing expeditions to the North, took little interest in the Eskimo; they were chiefly concerned with the prevention and treatment of frost bite, starvation and scurvy amongst their own crews. However, in 1821, Sir John Richardson, ship surgeon on Sir John Franklin's expedition to the north, made the observation that by comparison to the white man, the Eskimo was relatively healthy and was not as prone to the diseases which affected the explorers.

With increased exploration and white settlement came the need for better medical attention. In 1867, the first hospital-nursing station was erected at a Roman Catholic mission at Fort Providence; but it was not until twenty-eight years later (1895) that the first Arctic hospital was built on Blacklead Island at the southern tip of Baffin Island. Gradually, small hospitals were established; religious missions constructed hospitals at Fort Smith in 1914, Fort Simpson 1916, Aklavik 1925, Fort Resolution 1939, and Fort Rae in 1940. At first, these hospitals were built mainly for the treatment of tuberculosis which was rampant among the Eskimo population.

Health services to the 40,000 inhabitants of the Yukon and Northwest Territories are now administered by the Department of National Health and Welfare in co-operation with the Department of Indian Affairs and Northern Development (the Northern Health Service), the Territorial governments, physicians in private practice, and religious missions and other health agencies working in the North. Service is provided through federal nursing stations, clinics, health centres, and health stations. These will be discussed in more detail later. Except for the mission hospitals named above, the existing health services are under the auspices of the federal government. In cases where facilities are inadequate, government subsidized transportation makes possible the transfer of patients to better equipped centres.

Distributed throughout the Arctic and sub-Arctic regions are eleven hospitals, each designed to meet the needs of the region it serves. Some of these include the federal government hospitals at Inuvik (100 beds) and Frobisher Bay (28 beds), the Stanton Yellowknife Hospital (44 beds), the Whitehorse General Hospital (120 beds) and St. Mary's Hospital in Dawson (10 beds). The Stanton Yellowknife Hospital, one of the hospitals which I visited, illustrates the type of facilities available. It is a 44-bed hospital staffed by two general practitioners and a general surgeon. There are medical, surgical and obstetrical wards, as well as a small isolation unit. In event of an emergency or increased patient load, the hospital is able to increase its number of beds. There are three operating rooms; one for major operations, another for obstetrical patients and a third for minor surgery. The facilities allow for both elective and emergency operative procedures but are unable to cope with extremely elaborate operations. The laboratory is quite adequate, although more sophisticated tests must be sent to Edmonton.

In remote areas the key facility is the *nursing station,* a combined emergency treatment and public health unit having two to four beds. It is staffed by one to three nurses plus supporting staff, who are advised by visiting doctors or, in emergencies, obtain instructions by radio. The nursing stations are provided with an adequate supply of drugs and equipment necessary to treat acute illnesses or major emergencies until such time as a "mercy plane" is available. If possible one of the nurses is a certified midwife, and except in the case of primagravidas or mothers with past obstetrical complications, the babies are delivered in the nursing station.

An example of a fully equipped nursing station can be found at Old Crow in the Yukon Territory. It has four beds, two cribs and two bassinettes. The medical officer from Inuvik visits the station every two to three months, while the dental officer pays a yearly visit. Pa-

tients requiring hospital care can be transferred to the hospital in Inuvik. Cost to the government of constructing a nursing station is about $260,000.

One of the more important services that the nurses at the stations provide is a health education program. Various types of media are utilized for instruction; posters, pamphlets, radio talks, personal counselling and home visiting. Emphasis is placed on tuberculosis control, proper nutrition, and maternal and child care.

Health Stations, another health service facility, are located in small settlements of 100 to 250 people. They are used to accommodate visiting medical staff, who hold periodic treatment clinics, and for emergency patients until they can be evacuated to a nursing station or hospital. These units are smaller than nursing stations and do not actively offer treatment, except in emergency circumstances.

The smallest unit in the health service is the northern *dispenser* — R.C.M.P., missionary, trader, or teacher to whom a supply of basic drugs is entrusted. These people can administer first aid when necessary and in case of emergency will notify by means of radio the nearest treatment centre.

Another governmental service is a medical ship, the *C.D. Howe.* A medical party, consisting of three or four medical officers, at least one specialist (ophthalmologist or radiologist), an X-ray technician, two dentists, plus nurses and supporting staff annually make the trip through the Arctic. Patients can be transported to and from the ship by helicopter. This means that outlying areas such as Hudson Strait, Baffin Island, and as far north as Grise Fjord and Resolute Bay can obtain medical aid. Air transport can transfer those patients requiring further treatment to the nearest hospital.

Amongst organic diseases, tuberculosis has been one of the greatest medical problems for the Eskimo. Advances in the last twenty years have reduced the mortality rate from 600 per 100,000 population to less than 20. Mass immunization and innoculation programs, increased medical staffs and better communication facilities have almost eliminated the epidemics which used to ravage entire communities. Although a specific explanation for the susceptibility of Indians and Eskimos towards tuberculosis is unknown, it is probable that the inadequate and crowded housing, insufficient food, and intemperate weather conditions facilitate its prevalence.

An almost equally disturbing problem is the high incidence of venereal disease, mainly gonorrhea, but more recently syphilis as well. Introduced to the Eskimo by the white man, the diseases spread at an astronomical rate. In 1959 there were less than 250 cases of gonorrhea per 100,000 population, but by 1964 the number had risen to over 2,400. In 1966 there were 674 new cases of gonorrhea and 11 of syphilis, but for the first time in three years, the incidence of gonorrhea had not doubled. Perhaps this is an indication that the disease is slowly being controlled. At one point it was so widespread that it was considered necessary to administer prophylactic penicillin to an entire settlement. The creation of a Social Hygiene Unit by the Department of National Health and Welfare has aided vigilance of the disease. Any reported cases and contacts are followed up and treated where possible. The use of educational and informational media has been increased. Of course, as in southern urban areas, the major difficulty in controlling veneral disease is the number of cases which are not reported.

Of eleven new cases of syphilis discovered in the Northwest Territories in 1966, none were in the infectious stage. However, if even one infectious case were to occur, a serious epidemic could develop. Three years ago, an outbreak occurred in Greenland and it has taken until the present to bring it under control. The fact that monogamy was not the general practice until recently and that social mores did not stress the importance of marriage, encouraged the spread of the disease. Strict measures must be enforced to control it and if a patient refuses to co-operate, a warrant for his detention is issued immediately.

Like venereal disease, alcoholism is both a medical and social problem. The low tolerance level of Indians and Eskimos for alcohol may be related to a peculiar carbohydrate metabolism which has been demonstrated in these people. The following is an exerpt from a *Report on Health Conditions in the Northwest Territories (1966).*

> "Dr. Otto Schaefer, internist in charge of the Northern Research Unit, investigating problems of glycosuria, malnutrition and the effects of alcohol on the native* population suggests that perhaps there is a racial difference in the metabolism of alcohol in the native and non-native groups. Intravenous administration of alcohol into the two groups has shown that the native burns alcohol at about half the rate of the non-native and this could account for the apparent cumulative effect of alcohol on the native* with resulting severe intoxications and deaths from exposure."

Many solutions to the problem have been proposed (thus far unsuccessfully) such as complete prohibition and jail sentences for intoxication. A more sophisticated approach is based on the knowledge that the Indian and the Eskimo are accustomed to thinking only in the present and not in the future. A plan whereby everyone must order his alcohol two weeks in advance of receipt utilizes this knowledge and is now being implemented in some areas. Results are not yet available.

The practice of psychiatric medicine in the north is still in the embryonic stages. Mental illness is not un-

*native refers to Indian and Eskimo

known and certain aberrations occur which are peculiar to the area. One of these is *Pibloktoq* or Arctic Hysteria, the chief symptom of which is a convulsive seizure occasionally accompanied by conversion symptoms such as paralysed limbs. After a prodromal stage during which the victim seems mildly irritable and withdrawn for a period of hours or even days, a stage of excitement follows in which the victim suddenly with little or no warning becomes wildly hyperactive. He may tear off his clothing, break furniture, shout obscenely, eat feces, or perform other irrational acts. Usually he leaves the shelter and runs frantically onto the tundra or ice pack, plunges into snowdrifts, climbs icebergs and may actually place himself in considerable danger. Excitement may persist from a few minutes up to about half an hour. This stage (in some cases) is succeeded by convulsive seizures, collapse, and finally by stuporous sleep or coma lasting for up to half an hour. Following an attack, the victim behaves perfectly normally, and there is no recollection of the experience. Some have repeated attacks.

The attitude of the Eskimo toward mental illness is one of tolerance. Unless the patient is violent, the family, which is a cohesive unit, will usually provide excellent care. In the past they might have abandoned a violent or aggressive member. Removal south to a mental hospital can sometimes act as shock therapy and provide immediate results but it can occasionally increase the symptoms because of isolation in an unfamiliar environment. In many circumstances love and attention from the family unit prove to be the best therapy.

Health services provided by the government include consultations, in-service training of general medical personnel, and treatment. Periodically consultants are sent to the north to assess the mental health situation. However, they do not do actual therapy. The visiting psychiatrist gives in-service training to the general practitioner and instructs him in the use of specific methods of treatment. Nurses are advised on the care of suicidal and alcoholic patients. To demonstrate procedure the consultant may take a social history of the patient and then discuss it with the teachers and social workers at the base. He has thus set an example to be used for treatment of similar cases in the future.

To discuss birth and death rates, I am using the Northwest Territories as an example. From an estimated population of 26,500, 6,000 are Indians, 9,500 Eskimos and close to 11,000 are Whites. When interpreting vital statistics relating to the north it is important to remember that because of the small population involved, wider periodic variations may occur without being as significant as in a larger population.

Although with the introduction of contraceptive pills, the birth rate (the number of births per 1,000 population) is decreasing, the overall territorial birth rate is still almost twice that of the national rate. The prolific nature of these people is indicated by the birth rates of Eskimos and Indians as compared to Whites: in 1966 the figures were 54.4 and 37.9 respectively, while the non-native figure for the same year was 28.2. Interestingly, only 54 per cent of Indian and 64 per cent of Eskimo births occurred in hospitals or nursing stations compared to 99 per cent for the white population. Fourteen per cent of all live births were illegitimate. Compared to the past, this figure is not high for the Territories, but it is more than two and half times the national average. The stillbirth rate for the Territories is 26 per 1,000 live births or twice the national average, the highest incidence being among the Eskimos and Indians.

The mortality rate amongst the inhabitants is highest for infants under one year of age. Only 72 per cent of Indian infants, 53 per cent of Eskimo and 63 per cent of White infants survive year one. Climactic conditions with the high incidence of exposure, and the reluctance of many native women to use the available health facilities are party responsible. Thus, while the birth rate in the north is approximately twice that of the Canadian population, the death rate of infants and young children (47 per cent of all deaths are in children under five) is considerably higher than the national average. In 1966 the crude death rate (per 1,000 population) of 7.7 compared favourably with the national figure; however, since many of the non-native population go south before they reach an older age category, this figure is somewhat deceiving.

Although tuberculosis is a widespread medical problem in the Arctic, pneumonia is the "dark horseman of the apocalypse." Inadequate living conditions and the failure to obtain proper medical attention are partly responsible for the high incidence. Pneumonia accounted for 22 per cent of the total number of deaths in 1966. Injuries and violence accounted for 19 per cent and infant diseases 18 per cent. The high death rate due to pneumonia and to violence is in part related to the high alcohol intake. Amazingly, tuberculosis took only three lives, a figure which would have been inconceivable ten years ago.

The problems encountered by the northern doctor are manifold. Initially he must overcome the basic barriers of communication and transcultural understanding. In small settlements communication, particularly with the senior citizen, can be difficult without the aid of an interpreter. Even if the patient is able to speak English, his answers to questions are usually laconic and not infrequently, unreliable or misleading. Two factors are partially responsible for this: the Eskimo, anxious to please the doctor, often answers "yes" to a question in an effort to create an amiable impression; secondly, questions must be phrased in a certain manner, foreign to Cana-

dian whites, to elicit the correct responses. The art of taking a satisfactory history can be learned only through experience and perseverance.

Organized medicine is still a relatively recent phenonmenom in the North, and the problem of conveying the value of public health to the native people is still a difficulty to be overcome. Prenatal checkups illustrate this point. So far as Indians and Eskimos are concerned, women have become pregnant and given birth since the dawn of time with no thought to ever visiting a doctor or *shaman* (Eskimo witch doctor); one consulted a healer only in times of sickness. This natural reticence had to be overcome. To encourage frequent medical attention the Department of Health and Welfare pays the doctor for each pre-natal and post-natal visit instead of paying a flat rate for prenatal visits plus delivery.

Distance, geography and uneven population distribution also present unique obstacles to the northern doctor. In a population of only 26,500 in the Northwest Territories, one-third of them live within a 100 mile radius of Great Slave Lake. This means that there is one person per 800 square miles in the vast tundra area. In some cases the only possible means of travel is by airplane, and between freeze-up and breakup it is too hazardous to land at remote communities. This means that during this time it is virtually impossible to obtain medical help.

Despite many of the obstacles facing the Northern doctor, his work is always challenging and offers a wide scope. Whereas the urban general practitioner in the south is restricted in the number of hospital beds available to him and must often refer his interesting patients to specialists, the general practitioner in the north has no such limitations. Also he can be better able to witness the widespread effects of his medical care. If new houses are needed for certain destitute families, the physician may notify the Department of Northern Affairs which will usually act upon his suggestions. As a result of the government rectifying an economic and social problem, the physician may observe a decrease in disease incidence.

Indications are that despite the accomplishments of medicine in the north, future needs will demand newer and more original solutions. An increased and better educated population will necessitate the expansion of medical services — more doctors and nurses, a greater number of nursing stations, more elaborate laboratories, and better airstrips. Although there is not an actual shortage of doctors, occasional inferior quality and limited durations of stay are continual problems. Doctors rarely remain longer than two or three years, particularly those who do not live in the larger centres such as Whitehorse or Yellowknife. A partial solution to this problem is in the education of natives to become medical personnel. This year the first Canadian Eskimo has entered medical school at the University of Manitoba and will hopefully return to practice. In time perhaps, the North will be able to supply its own practicing physicians.

Throughout this paper I have alluded to the difficulties arising from communication between two distinct cultures — the sense of isolation the Eskimo feels in the white hospital and the language barrier inhibiting doctor and patient. Another instance where these barriers will have to be overcome is at The Charles Camsell Hospital at Edmonton, Alberta. This hospital was built specifically for the treatment of Indians and Eskimos. However, consider the plight of an Eskimo from Cambridge Bay suffering from tuberculosis, who must be moved from his familiar environment to a hospital 1,500 miles south for a period which may exceed two years. He is unable to speak English, he has no contact with friends or family, and probably is unable to write letters. In some communities the resentment and fear of being sent to Camsell is so great that in 1966, when the settlement of Fort Rae was to receive chest X-rays, not a single person reported to the clinic. The threat of being shipped south was a far greater fear than the consequences of undetected disease. Possibly the answer lies in the construction of sanatorium type hospitals in the north. Hopefully, we shall see these completed in the near future.

It is an understatement to speak of the north as an exciting place. For as terrifying as it may seem on some occasions, it may well appear quite awesome on others. It is not a place for the man who is running away from something. It is a place where one can go for a period of time, away from the noise and the kaleidoscopic environment of the impersonal city, to practice basic medicine with a special people; a people who have been neglected by too many for too long a time. I would like to believe that the experience of practice in the north might give to the physician something that is hinted at in the following lines from Hemingway's *Death in the Afternoon:*

> "There are some things which cannot be learned quickly, and time, which is all we have, must be paid heavily for their acquiring. They are the very simplest things, and because it takes a man's life to know them the little new that each man gets from life is very costly and the only heritage he has to leave."

Space restrictions prohibit inclusion of references. These may be obtained from the author.

Sir William Osler, 1849-1919

Sir William Osler is one of the medical profession's most outstanding personalities. Not only in his own time, but to the generations that followed him, he became a legend. In almost every field of medicine Osler's name appears, usually associated with some bit of wisdom which has withstood the test of time.

William Osler was born in 1849 in Bond Head, Ontario, the eighth child of Canon and Mrs. Osler. Osler's younger years were spent in Bond Head but his family moved to Dundas, Ontario in 1857. Here at the Weston school, the young Osler fell under the influence of Reverend Johnson who triggered Osler's interest in the microscope and its world. It was also through Reverend Johnson that Osler met Dr. Bovell, the medical director of the medical school of Trinity College, Toronto. The two became great friends and it was only natural that Osler attend Trinity College medical school when it came time for him to choose a vocation. Osler learned much from the doctor, including the art of being a meticulous observer and recorder of what he saw, and also how to make the step from the study of nature to the study of man.

Osler progressed to McGill University where he graduated satisfactorily, although not with honours. He was curious about new theories originating in Europe and so decided to spend some time there before he settled into practice. His first stop was London where he spent seventeen months with Dr. Sanderson, during which time he discovered platelets. He then proceeded to Berlin to observe the great Virchow in action. He was deeply impressed by Virchow's work in pathology, and it was probably this experience above all which started him relating gross and microscopic pathology to the clinical features of disease.

Osler returned to McGill in Canada, and began his career as a teacher. He was not the most eloquent speaker at first, but his pupils warmed to him because he was interested in them, knew his subjects well, and above all because he had the ability to communicate with them.

He spent most of his time in the pathology laboratory, encouraging his students to help him, and beginning his collection of notes on various diseases. However, he was frustrated because there were no microscopes for the students to use, as there were for the students in Europe. He rashly ordered some, hoping somehow to be able to pay for them. Fate was with him —a small-pox epidemic occurred and he was paid $100 extra for his services in the hospital in connection with this epidemic—more than enough for the microscopes. It is characteristic that he never took credit for paying for them.

Osler not only made his mark in training his students to relate pathology to clinical observation, but he also renovated the hospital wards, which in those days were dreary places. He opened the windows (unheard of!), repainted the brown walls (brown so they would not show the dirt) white, and forced the nurses to treat the patients like human beings. The results were astounding —the morale rose, and, much to the surprise of Osler's critics, so did the survival rate, even of people who were considered incurable.

Once he had established himself in the hospital, Osler was able to try another daring new idea—bedside diagnosis by medical students—unheard of in North America, which formerly was the exclusive right of graduate doctors. He felt that:

> "the student begins with the patient, continues with the patient and ends with the patient, using books and lectures as tools, as a means to an end."

He exposed his students to pathology (in the lab) and allowed them to observe the clinical findings and then try to deduce the diagnosis at the bedside, an approach which present day medical students take for granted, but which was revolutionary in Osler's day.

During these years at McGill, Osler's fame spread to the United States, and it was no surprise when he was offered the chair of clinical medicine at the University of Pennsylvania. But he was greatly torn between his loyalty to McGill in Canada and the potential of the

United States. In desperation he finally tossed a coin—Philadelphia won. This meant that he had to start all over again with his teaching methods, as there were no pathology laboratories and little bedside teaching at the American university. Osler's main ambition and problem again was to teach his students at the bedside, including student participation in the examination. Aside from patient reluctance, Osler was confronted with a superior who did not subscribe to his methods. However, both were diplomats and Osler was gradually able to introduce some of his methods without an open conflict.

In 1887 Osler was made a Fellow of the Royal College of Physicians in London, and his reputation as a teacher and scholar continued to grow. At the same time a new medical school and hospital were being set up in Baltimore, Maryland, with money bequeathed by a man named John Hopkins. It was to be built with all the latest innovations including bright airy wards and plenty of laboratory space for teaching. These were exactly the causes for which Osler had been fighting! Thus it was no surprise when he jumped at the chance to be head of the Medical Department when it was offered to him. The leaders of the new centre had two things in common—boundless enthusiasm and exciting new approaches to medicine. The Big Four—Osler, Welch (pathology), Halstead (surgery) and Kelly (gynecology) set a modern tone to the new venture and played a prominent role in launching this centre on its outstanding course.

Osler spent the first few years setting up a residency program—which up until that time had only existed in Europe. He also amplified and edited his note collection which became his classic work *The Principles and Practice of Medicine,* the first edition being published in 1892. While it contained no revolutionary discoveries, it provided a complete summary of the diseases as they were understood at that time, something no other book had done before. He had fulfilled one of the requirements of a good teacher—as he so aptly put it,

> "men are required (to head teaching departments) who have a sense of obligation, that feeling which impels a teacher to be also a contributor and to add to the stores from which he so freely draws."

The medical school finally opened and Osler was able to implement his ideas. To his delight he found that his students' early experience with patients, as well as making them keen observers, also made them aware that diseases do not always present in the classic fashion. He also assigned patients to the care of his senior students—a daring advance, but a resounding success. In fact, he said,

> "in a hospital with students in the wards, the patients are more carefully looked after, their diseases more fully studied, and fewer mistakes are made."

In the years which followed, Osler had a full life—teaching, research, revision of his text book, consultations and speaking engagements. This was one of the happiest times of his life, as he finally married and was able to share his experiences with a very empathetic companion. Another facet of his character should not be forgotten, for, as is so often said—never is a great man devoid of a sense of humour. This was seen in his approach to his patients (much to their surprise, as they usually expected from his reputation to see a pompous old man) as well as in his dealings with his colleagues. He often tried to "fox" his colleagues with fabricated cases which he submitted under the pen name of Egerton Y. Davis. For example, one of these refuted an absurd claim that extra-uterine pregnancies could be converted to intra-uterine by the use of electric current.

By 1905 Osler was living at a furious pace, relieved only by his home life which was added to by the birth of his son River in 1896. When he was offered the Regius Professorship in Medicine at Oxford, his wife advised him by telegram, "Don't procrastinate, accept." So it was that the Oslers sailed for Oxford and settled into a new way of life. The pace was much slower, not so demanding, and provided a well deserved rest for Osler. He was made a Baron in 1911 and continued presiding over Radcliff Infirmary and giving a few lectures. Then the war came and Osler became involved as a consultant to all Canadian medical services, as well as visiting all the wounded Canadians. The most crushing blow came when River, Osler's only son, was killed on August 30, 1917. After the war he continued his work at Oxford and was going strong when he died on December 29, 1919.

Sir William Osler still enjoys the reputation of being the world's best doctor. More than anyone else, it was probably William Osler who was responsible for bringing about the type of medical education which we enjoy today. In fact, far from diminishing, the years have rather added to his glory.

Miss P. Kirkpatrick, B.Sc. 6T9

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Psychotropic Drugs In General Practice

The past fifteen years have seen the introduction of a large number of drugs which affect the mind and alter behaviour. As a result, these drugs have had a major impact on the practice of general medicine and psychiatry. The general practitioner is becoming a key figure in the treatment of common psychiatric problems, and in this role a thorough knowledge and intelligent use of psychotherapeutic drugs are essential. Disappointing results in the treatment of psychiatric illnesses have been due to a variety of reasons, such as use of the wrong drug, inadequate dosage, treatment for too short a time, and failure to understand that drug treatment is but one phase of the comprehensive care of the patient. In this article, we will discuss the indications and contraindications for the use of the common psychotropic drugs in general practice.

A widely used classification, helpful in grouping both therapeutic and side effects, is as follows:

CLASSIFICATION

A. *Minor tranquilizers* (anti-anxiety)
—e.g. chlordiazepoxide, meprobamate

B. *Major tranquilizers* (anti-psychosis)
—e.g. chlorpromazine, reserpine

C. *Anti-depressants* (energizers)
—e.g. dexedrine, imipramine

Only the more widely used drugs will be discussed here, since we are presenting this information in relation to general practice.

MINOR TRANQUILIZERS

These include *propanediols,* such as meprobamate, tybamate, and hydrozyphenamate, and the *benzodiazepines,* such as chlordiazepoxide, diazepam, and oxazepam. Although these two groups have different chemical structures, they are grouped together because of similarities in action, indications for use, and potential hazards.

ACTION

They block the polysynaptic pathways of the central nervous system and have a poorly understood effect on deep thalamic activity. They tend to have a relaxing effect on voluntary muscles, and have an anti-convulsant action. They are excreted from the body slowly, and may have a cumulative action.

INDICATIONS FOR USE

These drugs are useful primarily in milder neurotic anxiety (tension) states of an intermittent or situational type, and they may be helpful in some cases of insomnia. These drugs are not indicated in chronic anxiety states or in those associated with schizophrenia or depression. They may intensify depression in some individuals. They should be discontinued if the patient is not responsive to a moderate dose in two or three days.

PRECAUTIONS

All of these drugs potentiate the depressant action of barbiturates, antihistamines, narcotics and alcohol. There is a relatively small risk of toxicity, but a wide range of undesirable effects have been observed. Such side effects as chills and fever, rashes, stomatitis, drowsiness, paradoxical excitement, menstrual irregularities, aplastic anemia, non-thrombocytopenic purpura, ataxia, and anaphylactic reactions after even a single dose, have been reported to occur. Overdose may lead to coma, vascular collapse, general arreflexia and death.

Addiction, especially to meprobamate (and rarely chlordiazepoxide) with typical withdrawal symptoms has been reported. For this reason meprobamate has been taken off the U.S. drug market. These drugs have become increasingly popular as suicide vehicles.

DOSAGE	*Single dose*	*Daily dose range*
Chlordiazepoxide (Librium)	5-10 mg.	40-100 mg.
Diazepam (Valium)	2-2.5 mg.	6-30 mg.
Meprobamate (Miltown, Equanil)	200-400 mg.	600-2400 mg.

MAJOR TRANQUILIZERS

This group includes all the *phenothiazine* derivatives, as well as the *rauwolfia* alkaloids which we will not discuss, since their primary use today is in the control of hypertension, and not as psychotherapeutic agents.

ACTION

The phenothiazines in moderate doses calm the individual without producing sleep, and they reduce the intensity of severe psychotic anxiety, with resultant lessening of delusions, hallucinations, and other psychotic activity. Reduction of sensory input through the reticular formation, allowing the cortex to better cope with and organize thought processes, may be the mechanism here. A central adrenergic blockade is combined with antihistaminic, vagolytic, antiemetic, antiseritonin and other actions. Some of the effects are: hypotension, compensatory tachycardia, dry mouth, hypothermia (hypothalamic effect), variable sedation, weight gain, and an unusual indifference to pain.

Phenothiazines are absorbed in 30-60 minutes when given orally and in 5-10 minutes when given intramuscularly. Intravenous administration is contraindicated. Fifty per cent of the dose is excreted in the urine

and feces, while the rest is stored in keratinous structures, lungs, pancreas, testes, and liver.

These drugs potentiate the actions of other central nervous system depressants, hypnotics, anaesthetics, and analgesics.

INDICATIONS

The major tranquilizers are basically used in the symptomatic treatment of psychotic anxiety. This includes (1) the affective psychoses for both manic symptoms and agitated depression (in conjunction with antidepressants), (2) schizophrenia, (3) organic psychoses, and (4) occasionally in severe anxiety neuroses.

The choice of drug is determined by the occurrence of serious side effects (see below) and by the degree of drowsiness that is produced. There is a rough correlation between the side chain structure and the incidence and severity of drowsiness and other side effects.

Aliphatic side chain (e.g. chlorpromazine)

These have more sedative and autonomic effects, and the highest incidence of agranulocytosis and jaundice. However, they have fewer extrapyramidal and dystonic reactions.

Piperazine group (e.g. prochlorperazine)

These have greater potency per milligram of drug, and fewer sedative effects, but have the highest incidence of extrapyramidal and dystonic reactions.

Piperidine side chain (e.g. thioridazine)

Their milligram potency is equal to that of the aliphatic group, and they produce fewer sedative and extrapyramidal effects.

PRECAUTIONS

Toxicity with these drugs is variable. Major problems include sedation (drowsiness), autonomic effects (headache, dry mouth, blurred vision, etc.), dermatitis, obstructive jaundice, blood dyscrasias, extrapyramidal and dystonic reactions, endocrine changes, cardiac abnormalities, and behaviour psychoses.

DOSAGE	*Single dose*	*Daily dose range*
Chlorpromazine (Largactil)	75-100 mg.	300-1000 mg.
Perphenazine (Trilafon)	2-4 mg.	4-20 mg.
Thioridazine (Mellaril)	25-100 mg.	25-800 mg.

ANTI-DEPRESSANTS

The drugs used to treat depressed states may be grouped as follows:

(a) amphetamines e.g. Dexedrine

(b) tricyclic iminodibenzyl group e.g. Tofranil, Elavil, Aventyl

(c) monoamine oxidase inhibitors e.g. Parnate, Nardil.

AMPHETAMINES

These are *direct* central nervous system *stimulants*, acting quickly, and exerting their effect mainly on the cerebral cortex. They are helpful in short term situations with mild mood changes. Their chief danger is habituation and addiction.

TRICYCLIC IMINODIBENZYL GROUP

These drugs are similar to the phenothiazine tranquilizers, and are not stimulants but *suppressants*. However, in depressed patients they effect a rise in mood and activity. They have general anticholinergic properties, do not change the levels of brain catecholamines, and appear to alter the sensitivity of the synaptic receptors to the adrenergic hormones. These drugs are absorbed slowly, and require 10-21 days before clinical improvement is noted.

PRECAUTIONS

Side effects with the Tofranil group are similar to those of the phenothiazines, with special emphasis on postural hypotension, cardiac arrhythmias, and atropine-like effects on the eyes and bladder. Therefore, small doses should be used for the first few days of treatment. Tricyclic compounds should never be used together with MAO inhibitors, since the combination may result in coma, convulsions, fever, cardiac arrhythmias, and death.

MONOAMINE OXIDASE INHIBITORS

There are two types of MAO inhibitors. The first is an *indirect* central nervous system *stimulant*. By blocking monoamine oxidase they prevent degradation of norepinephrine and serotonin. A resultant increase in levels of these compounds in the central nervous system produces a rise in psychomotor activity, most likely related specifically to a change in the norepinephrine levels. An example of this type is Nardil. A second type is both indirect and direct in its action. An example of this bimodal type is Parnate.

PRECAUTIONS

MAO inhibitors potentiate the actions of amphetamines, sedatives, narcotics, and alcohol. They are contraindicated in patients with a history of liver disease and in patients who are pregnant. Severe crises have occurred when patients taking MAO inhibitors have eaten foods containing the pressor amine tyramine. Such foods include soft cheese, yogurt, chopped liver, beer, and herrings, all of which must be cautioned against. Failure to observe these precautions has caused episodes of violent headache, severe hypertension, seizures, heart block, subarachnoid hemorrhage, and high fever. Treatment of this "hypertensive crisis" is chlorpromazine, 25 mg. in 20 cc. of saline given intravenously over a two minute period, or alternately 5 mg. of Rogitine given slowly intravenously while monitoring blood pressure. Many clinicians have discontinued using MAO inhibitors (except perhaps the bimodal Parnate) for these reasons.

The more common side effects include mild headache, dry mouth, constipation, vertigo, hypotension, edema, and dermatitis.

INDICATIONS

There are some indications that the tricyclic compounds are more effective in psychotic depressions, whereas the MAO inhibitors are better for neurotic depression. See later discussion on "General Principles in the Drug Treatment of Depression".

DOSAGE	*Single dose*	*Daily dose range*
d-Amphetamine (Dexedrine)	5 mg.	5-30 mg.
Imipramine (Tofranil)	10-25 mg.	75-200 mg.
Amitriptyline (Elavil)	25 mg.	75-150 mg.
Nortriptyline (Aventyl)	10-25 mg.	20-100 mg.
Phenelzine (Nardil)	15 mg.	15-60 mg.
Tranylcypromine (Parnate)	10 mg.	10-30 mg.

GENERAL PRINCIPLES IN THE DRUG TREATMENT OF DEPRESSION

Depression is probably the most common psychiatric problem seen by the general practitioner today, and thus a detailed discussion of its treatment is warranted. The following points should be kept in mind.

1. Drug treatment is indicated in all cases of severe depressive symptoms, regardless of etiology and clinical manifestation. Drug treatment may not be indicated in milder neurotic or reactive depression. The only contraindications to drug treatment are adverse side effects, or history of a previous serious reaction.

2. Drug treatment itself is not sufficient. Psychotherapy must be an integral part of the treatment.

3. Depression is a serious and potentially fatal disease. The patient must be protected from the dangers of suicide during the period before the drugs begin to be effective (and after, since raising the mood of a retarded depressive may give him enough energy to commit the act).

4. With the exception of the amphetamines, most anti-depressant drugs have a clinical latent period of 10-28 days. There are newer tricyclic drugs which are said to be effective in about 5 days.

5. When initiating therapy, begin with the smallest dose for a day and then increase to the maximum as tolerated. Be alert for a sudden drop in blood pressure.

6. Imipramine and the MAO inhibitors have an alerting effect on the patient and are best given in the earlier parts of the day so as not to interfere with sleep.

7. There are no clinical criteria for the choice of one type of anti-depressant over another. The tricyclic compounds are more effective in severe psychotic depression, while the MAO inhibitors are more effective in the milder neurotic depressions.

8. An effective trial period for any anti-depressant drug is four to six weeks. The sooner that "breaks" appear in the depression (improved appetite, desire to communicate with others, change in sleep pattern), the better the prognosis. The first changes may be seen in 10-14 days with faster acting drugs and in 21-28 days with the slower acting ones.

9. Unless uncontrollable hyperactivity, psychotic symptoms or serious toxic effects develop, drugs should be continued at the maximum therapeutic level for at least two months after clinical improvement.

10. If a patient fails to respond to one drug of a group, he is unlikely to respond to another of the same group.

11. Never use combinations of anti-depressant drugs. Before switching from a tricyclic drug to an MAO inhibitor (or vice versa) it is necessary to allow a drug free interval of at least seven days.

12. Electroconvulsive therapy (which requires hospitalization) is recommended in severe suicidal risks and in patients not tolerant or responsive to drugs. While ECT may be given while a patient is on medication, some precautions are necessary because of the danger of potentiating the effects of sedatives and hypnotics given prior to ECT. It is recommended that drugs be omitted on the morning of ECT. It should never be given if the patient has received a rauwolfia derivative within the previous five days, since respiratory and circulatory collapse with death have occurred with this combination.

GENERAL GUIDES TO THE USE OF PSYCHOTHERAPEUTIC DRUGS

1. Psychotherapeutic agents are best used symptomatically as a part of the total treatment of the patient. They should never be used as a substitute for a meaningful interpersonal relationship between patient and physician. Patients appear to respond more favourably when there is a continuing program of psychotherapy in the form of counselling, and when the patient has been told what the drug is meant to do.

2. These drugs should be used only when absolutely necessary and under circumstances which will assure an adequate dose level for a sufficient period of time.

3. There is no danger of habituation and addiction with the major tranquilizers and anti-depressants. There is a very real danger with the minor tranquilizers.

4. Never stop any of these medications abruptly unless the side effects demand it.

5. These drugs should not be used during pregnancy unless absolutely necessary. This is especially important in the first trimester.

B. W. Hands 6T8

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Fundamentals Of Radiologic Examination

The Abdomen - Part One

As was indicated in the first issue of this volume of the Journal, this issue will deal with the radiologic examination of the abdomen, with particular reference to (1) plain films and (2) contrast media (barium) studies of the gastrointestinal tract. Next month we will consider the radiological examination of the genitourinary system and at that time a variation of abdominal plain films—the K.U.B. will be discussed. Before describing the radiological features of the common abdominal lesions, a brief discussion of the procedures involved might be helpful.

UPPER G.I. SERIES (BARIUM SWALLOW)

This procedure is done under fluoroscopic control. The patient swallows barium while standing in front of a fluoroscope so that the passage of the barium can be followed from the beginning.

Basically, there are two methods used, the conventional and image intensifier method. With either of these devices the operator can focus on an area of interest with a coning device and take what are called "spot films". As the radiologist watches the barium pass down the upper G.I. tract he can take these "spot films" at either various designated areas or only at suspicious areas. At the same time he uses various manoeuvres such as pushing down on the patient's anterior abdominal wall or tilting the patient in order to localize the barium to demonstrate lesions otherwise not obvious. This is particularly important in suspected duodenal ulcers (compression films).

The first step in examining an Upper G.I. Series is to orientate the pictures. This requires experience but may be done more readily if one finds the last pictures taken, the so-called "overhead" pictures which are large films taken with the patient tilted so that the fundus of the stomach is full of barium. These are the easiest films to orientate and one can then proceed backwards from these to the earlier films.

In examining an Upper G.I. Series, the same rules hold as for all x-rays. One adopts his own order just as long as all the anatomical structures, including bony structures, are examined.

OTHER PROCEDURES FOR EXAMINATION OF THE "UPPER" GI TRACT

Obviously, if one is to examine the peristaltic *movement* of the G.I. tract, moving pictures must be taken using fluoroscopic techniques. "Cine" pictures simply refer to a technical method by which the films are obtained. Slow-motion films are particularly helpful in the pharynx where the barium passes through very rapidly. Movies are also useful to demonstrate polyps moving on a stalk which may not otherwise be seen.

In order to examine the duodenum closely, a procedure known as *hypotonic duodenography* may be employed. The duodenum is locally anaesthetized by means of Xylocaine which allows the duodenum to fill up with barium so that it can be examined in greater detail.

A *motor meal* (*or small bowel follow-through*) consists of following the passage of the barium through the small intestine under fluoroscopic control and taking spot films at certain intervals. This procedure takes two to three hours and is done if a lesion such as a tumor of the small bowel is suspected.

BARIUM ENEMA (LOWER GI SERIES)

One procedure routinely done with the barium enema is the *post-evacuation film*. After the barium enema is administered, films are taken. The patient evacuates his bowels and additional films are then taken. This technique is useful to show the mucosal pattern.

Another procedure called an *air contrast study*, consists of mixing air and barium in the enema. This shows up the colon extremely well and is used mainly to delineate polyps which on ordinary barium enema might not be seen.

A. PLAIN P.A. FILMS

These are usually done as a routine procedure in the study of the acute abdomen. Three "emergency views" are usually taken with the patient supine, erect, and in the lateral decubitus position. Plain films are also used in other instances, however, and may be useful in the following:

1. abnormal accumulations of gas within the intestinal tract
2. free gas within the peritoneal cavity (pneumoperitoneum) as in suspected perforation of hollow viscus
3. ascites
4. abnormal intra-abdominal calcifications
5. size, shape and position of the liver, spleen and kidneys
6. abnormal intra-abdominal masses, e.g. tumor, aneurysm
7. intra-abdominal abscesses
8. radiopaque foreign bodies in the gastrointestinal tract or within the peritoneal cavity.

1. Abnormal Accumulations of Gas Within The Intestinal Tract

Usually gas in the small intestine does not show up as a recognizable loop pattern. When individual segments of small intestine can be recognized, are dilated in width, or of greater length than 8 to 10 cm., then the gas pattern is likely abnormal.

a) *Obstruction of the Small Intestine*

Within a few hours after the onset, gas and fluid begin to accumulate above the obstruction. The gas is mostly swallowed air. Gas is visualized in all films, but fluid may be seen only in upright or lateral decubitus views where the gas rises above the fluid—the interface forming a straight horizontal line called an *air-fluid level.*

In addition, the gas-filled loop (or loops) is increased in calibre and with increasing distention, more loops become visible which tend to lie transversely one above the other forming the classical "step-ladder-like" pattern. Distended loops and air-fluid levels are almost invariably visualized four to six hours after the onset of an acute obstruction (and usually earlier).

The gas-filled loops are recognized as *small* intestine by their location in the central part of the abdomen (rather than around the periphery), and by fine serrations along the margins caused by mucosal folding. These are finer and closer together than colonic haustra.

In *complete* small bowel obstruction, little or no gas is seen in the colon, although small amounts may be present if the examination is done early after the onset of symptoms. In *incomplete* obstruction, gas will be present in the colon as with large bowel obstruction, but differentiation is usually not difficult for the reasons mentioned previously, and also because the colon in small bowel obstruction is not distended, and in fact, may be decreased in calibre. In addition, in low colonic obstruction, the major distension occurs in the large intestine, although with time the small bowel becomes secondarily distended.

On the other hand, it may occasionally be difficult to differentiate obstruction due to adynamic ileus from incomplete mechanical obstruction of the small bowel, since in both cases gas will be present in the colon.

b) *Obstruction of the Large Intestine*

Three common causes of this condition are fecal impaction, chronic diverticulitis, and carcinoma. It is identified by colonic distension proximal to the obstruction. The colon is distinguished by (1) haustral sacculations and (2) its position at the periphery of the abdomen (like a picture frame). It should be noted that the haustra of the large intestine are deeper and wider than the mucosal folds of the small intestine. Also, solid fecal matter is often present in the colon which gives the gas shadows a finely mottled appearance not seen in the small intestine.

Air-fluid levels are significant in the colon only if the patient has had no enemas prior to the x-ray examination.

2. Gas in the Peritoneal Cavity (Pneumoperitoneum)

The most common causes of pneumoperitoneum are (1) perforated peptic ulcer, (2) perforated carcinoma (stomach or colon), (3) perforated colonic diverticulum, (4) traumatic rupture of the stomach or intestines, (5) peritonitis, and (6) following abdominal surgery.

The time interval following rupture and the appearance of sufficient gas to be visualized on x-ray varies according to size of the rupture, the location of the lesion, and the amount of gas present within the lumen of the segment. It is usually more than one hour.

The demonstration of free air in the peritoneal cavity is best done with the patient upright. The gas ascends and accumulates beneath one or both domes of the diaphragm where it appears as a curving translucent zone limited above by the curved shadow of the diaphragm and below by the denser abdominal tissues. It is easier to recognize on the right side because of contrast with the homogeneous density of the liver which may totally disappear sometimes in massive pneumoperitoneum. Note on the left that one must not confuse the normal fundal gas bubble with gas in the subdiaphragmatic space.

3. Ascites

The radiologic diagnosis of ascites is not 100% accurate and the clinical impression is equally important. Features suggestive of ascites on abdominal plain film include (1) separation and floating of bowel loops (lateral decubitus view only), (2) fuzziness or obliteration of the psoas shadows, (3) overall abdominal haziness classically described as a "ground glass" appearance, (4) overall increased density in the pelvic region on upright films and (5) poor delineation of major abdominal organs.

Certain of these findings, if not all, have fallen into disrepute in some radiological circles. More recently Margulies and Sloan have described a sign, *the Hepatic Angle Sign,* in which the lower lateral angle of the liver is obliterated in the presence of even small amounts of intra-abdominal fluid. Another helpful sign in detection of intraperitoneal blood or ascitic fluid is medial displacement of the colon. A variation of this, called the *Flank Stripe Sign,* has been recently described by McCort. This is quite technical and not yet generally accepted; those interested in this sign may consult his paper.

4. Calcifications

Biliary and urinary tract calculi will be considered in future issues. Other intra-abdominal calcifications include:

a) *Calcified Mesenteric Lymph Nodes*

These are seen most frequently in the right lower quadrant or in the lower central part of the abdomen and usually represent the effects of previous tuberculosis. They appear as mottled circumscribed densities, seldom more than 1 to 1.5 cm. in diameter. Often two or more nodes are clustered together or within a small area.

b) *Vascular Calcifications*

In veins, calcifications are called *phleboliths*. These are calcified thrombi and are frequently seen on plain films where they appear as round or slightly oval densities, varying in size from very small to half a centimeter or more in diameter. The small ones are usually homogeneous but larger ones may be ring-contoured or even laminated. Ureteral calcluli may be differentiated by their irregular shape and parallel position to the long axis of the ureter. Also, calculi are seldom found below the level of the ischial spine, whereas phleboliths are often found in this position.

In arteries, calcification is often seen, primarily in older patients with arteriosclerosis. This is commonly found in the abdominal aorta in the lumbar region where it appears as a thin, dense line along the wall of the vessel. It is also seen in the iliac and splenic arteries.

Calcification also occasionally occurs in (1) appendiceal fecoliths, (2) various cysts in the mesentery, spleen, kidneys and liver, and (3) some tumors.

B. UPPER G.I. SERIES

Because of space limitations, only a few of the more common lesions will be discussed.

1. Esophagus

a) *Carcinoma*

An early lesion causes a filling defect with an irregular or nodular surface. The normal mucosal pattern is usually lost. At this point it might be helpful to consider the term "filling defect"—often confusing to students. This is an *invagination* of a barium column or cavity (Fig. 1a), not an *evagination* which is an ulcer (Fig. 1b). Of course an ulcer can, and does, commonly occur *within* a filling defect (Fig. 1f). Moreover, an ulcer only appears as an evagination when it is seen in profile: when it is seen en face it simply appears as a circumscribed, constant area of increased density (since one is looking through a *deeper* barium column—Fig. 1c).

Another feature of eosphageal carcinoma is sharp demarcation of the edges of the lesion producing a sharp angle with the esophageal wall—referred to as a "shoulder". More advanced lesions encircle the lumen completely, producing an annular constriction. This produces bilateral shoulders above and below, known classically as an "apple core" or "hour glass" appearance (Fig. 1d). If the carcinoma is situated at the distal end of the esophagus as it is commonly, the lower shoulders

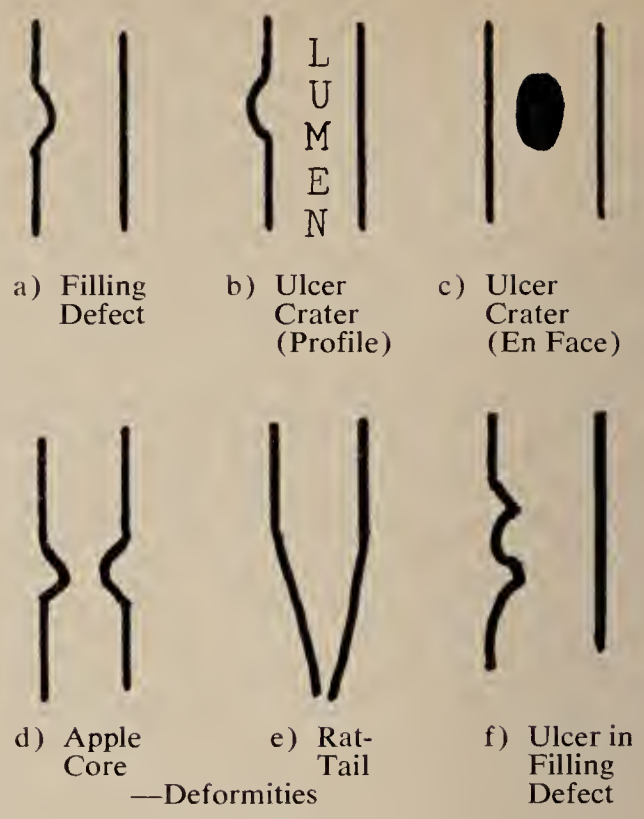

Figure 1.

may not be visible and the lesion is described as having a "rat tail" appearance (Fig. 1e).

An important feature is that the defect is constant and reproducible. Also, the eosphagus above the defect may be moderately dilated; the amount of dilatation depends upon the amount and duration of obstruction. Extreme dilation is unusual as would appear in stricture or achalasia which are of longer duration than carcinoma.

Cancer of the esophagus may rarely present radiologically as an ulcer crater. The crater may be deep and punched out, or slightly shelving with some irregularity of the margins. No delay in barium passage is observed in this type.

b) *Esophageal Varices*

The radiologic efficiency of demonstrating varices is controversial, but all would agree that certainly not all varices can be visualized.

In early cases, they may appear as linear filling defects a few centimeters long which may be seen on the surface of the esophagus at the lower end. In advanced cases, the lumen of the esophagus may be widened and slightly tortuous. The normal shallow, longitudinal folds are obliterated either partially or completely by varicosities to produce filling defects in the barium column. These may be worm-like or globular, and vary in size.

2. Stomach

a) *Gastric Ulcer (Benign)*

Most gastric ulcers are on the lesser curvature of the stomach. The size is usually 1-2 cm. in diameter but

some may be as large as 6-8 cm. The latter point will be elaborated on later.

The characteristic lesion is, of course, the "ulcer niche" or crater. When seen in profile, the niche projects *outside* the normal barium-filled lumen. The margins of the crater are smooth, but tend to undermine the edge slightly so that the base of the crater may be a little larger than the neck. A narrow rim of induration around the lip of the crater produces a translucent halo in the barium shadow. Abnormal mucosal folds due to scar contraction may be seen radiating outward from the base of the crater like the spokes of a wheel. Opposite the crater there may be a finger-like indentation of the greater curvature called the *incisura*. This may be caused by spasm in recent ulcers and be inconstant, or in chronic ulcers it may be a fixed, constant defect caused by scar contraction. In these cases the incisura may be so deep as almost to bisect the stomach resulting in an "hour glass" configuration.

Another finding may be *spasm* in the prepyloric area. If such spasm exists for a long period of time it may cause permanent narrowing of the prepyloric area as a result of hypertrophy of the pyloric musculature.

Changes in *mucosal folds* may also be seen. The tendency for a spoke-like radiation of folds has been noted previously. Also, the folds may be thickened throughout the stomach when gastric or duodenal ulcers are present, probably as a manifestation of chronic gastritis.

Gastric Retention as a result of pyloric obstruction is another occasional feature of gastric and duodenal ulcers. The supine view characteristically shows a dilated stomach filled with air (swallowed) which in the erect view may appear as a massive air-fluid level extending across the upper or mid abdomen. Occasionally, there is only a small amount of swallowed air and the stomach is filled with fluid and food which gives a "ground glass" appearance.

b) *Malignant vs Benign Ulcers*

Malignant ulcers are characterized by (1) a crater which is irregular in shape and depth and (2) a "heaping up" of the ulcer margins which produces a wider, often nodular halo. The result is that the ulcer usually does not extend beyond the lumen of the stomach as does a benign ulcer, but rather is a "crater within a filling defect", (Fig. 1f). This latter combination of signs is known as the "meniscus sign" and is a reliable index of carcinoma as long as one is certain that the lesion is being viewed in profile.

Formerly the size and location of gastric ulcers were stressed. It was taught that ulcers greater than 3 cm. in diameter and those on the greater curvature were likely to be malignant. These criteria are not emphasized as strongly now, particularly size, although there is no doubt that greater curvature ulcers, and those in the fundus and prepyloric areas, are more often malignant than ulcers in the body region (middle one-third). It should be realized that reliance cannot be placed on radiological appearance alone and regardless of morphology, size, or location the index of suspicion should be high in all gastric ulcers.

The response to rigorous medical management is extremely important in assessing the nature of a gastric ulcer. With rigorous treatment for three weeks there should be a radiologically demonstrable decrease in size by at least one-half. If not, surgical exploration or gastroscopic biopsy should be entertained, and the ulcer considered malignant till proven otherwise.

3. Gastric Carcinoma

a) *Polypoid (Fungating) Type*

This tumor forms a bulky mass which projects into the gastric lumen producing a filling defect. The surface is irregular or nodular, the mucosal folds are lost over the surface of the lesion, and the defect is constant, rigid, and reproducible.

b) *Infiltrating (Scirrhous) Type*

Scirrhous carcinoma does not cause a distinct intraluminal mass but rather infiltrates the gastric wall and spreads beneath the mucosa. The wall becomes thickened and rigid at the site of the tumor such that peristalsis does not pass through the region. The radiologist has great responsibliity in detecting these lesions since the only early radiologic sign may be a very small, rigid region of the gastric wall.

When most or all of the stomach is involved, the lesion is known as *linitus plastica* or "leather bottle stomach". The mucosal folds usually are obliterated and instead, the surface has a rough, granular appearance. Characteristically, this type of carcinoma does not obstruct the orifices until late; rather the cardia and pylorus become so rigid and patent that the barium literally pours through the stomach into the duodenum.

c) *Ulcerating Carcinoma* (described previously)

4. Duodenum

Peptic Ulceration

The ratio of duodenal to gastric ulcers clinically is 4 or 5 to 1, although autopsy results show that actually gastric ulcers are more common. Most duodenal ulcers are located in the first part of the duodenum, which appears radiologically as a triangular, area, and is known as the duodenal "cap". They are commoner on the posterior wall but may be found on the other surfaces as well.

The ulcer crater is similar to that of the gastric ulcer except that it is usually seen *en face* (Fig. 1g). Again, mucosal folds radiate outward from the crater. Adjacent deformities in the duodenal cap are also commonly seen which have been classically described as "coral

branch" and "pine tree" deformities. Usually the crater can be distinguished, but in many longstanding cases the presence of an ulcer can only be determined by the presence of those deformities which are produced by a combination of scarring, edema, and spasm.

Other changes include an incisura deformity and distortion of the pyloric canal associated with deformity of the cap. Secondary disturbances in the stomach may appear radiologically. Reflex hyperperistalsis resulting from the irritative focus in the duodenum may be quite severe. If the pylorus is patent, this results in rapid gastric emptying. As with gastric ulcers, there may be increased thickness of gastric rugae as a result of gastritis.

C. BARIUM ENEMA

1. Caecum and Ascending Colon

Carcinoma

Here, roentgenological visualization is particularly important because of the tendency for carcinoma of this region to be asymptomatic. The polypoid type is the most common lesion in this area and produces the characteristic intraluminal filling defect with a broad base. An irregular or nodular contour is again more suggestive of a malignant than a benign tumor. Alteration of the normal mucosal pattern also favours malignancy, and the transition from pathologic to normal mucosa is more likely to be sharp. It should be noted that inflammatory lesions of this area may show these same changes so that radiologic diagnosis alone may be impossible.

2. Descending Colon

a) *Diverticulosis and Diverticulitis*

Diverticuli are most frequent on the mesenteric aspect of the sigmoid colon where they form barium-filled "buds" projecting beyond the confines of the lumen.

When diverticulitis supervenes, the roentgen signs are only obvious when the inflammatory reaction involves not only the pericolic tissues, but the colonic wall as well. When this happens the inflammatory mass encroaches upon the bowl lumen and causes a filling defect. The radiologic appearance of diverticulitis is characterized by three signs: (1) the *gradual* transition from normal to narrow lumen at both proximal and distal ends of the lesion, (2) the presence of mucosal folds in the region of the defect, and (3) the presence of diverticula within the area of narrowing.

These three signs help distinguish the lesion from other causes of narrowing, particularly carcinoma. However, differentiation is still difficult and often impossible, especially since the two lesions may coexist and the symptoms are similar.

b) *Carcinoma*

Approximately 60% occur in the rectum and in the rectosigmoid region, another 10% in the remainder of the sigmoid, and the final 30% in the rest of the colon.

Infiltrating carcinoma is the common type occuring in the descending colon and rectum. This eventually produces an annular constriction of the lumen. The folds of mucosa are absent and the defect is constant and rigid.

3. Ulcerative Colitis

The disease usually begins in the rectum and proceeds proximally. Early changes are largely mucosal, appearing as fine spiculations, ulcerations, and loss of mucosal markings. Post-evacuation films are often best for showing up this mucosal pattern.

Late changes seen in this disease include shortening of the colon, and twists in the haustral markings; eventually there is loss of haustra and generalized narrowing of the colon. Classically, this is called the "lead pipe" deformity.

Obviously with so many variations in appearance of plain films and the various barium studies of the G.I. tract, it will not be possible to show representative radiographs in this issue. These can be easily obtained in a good radiology text or in the teaching files of any major hospital.

S. Langer 6T9

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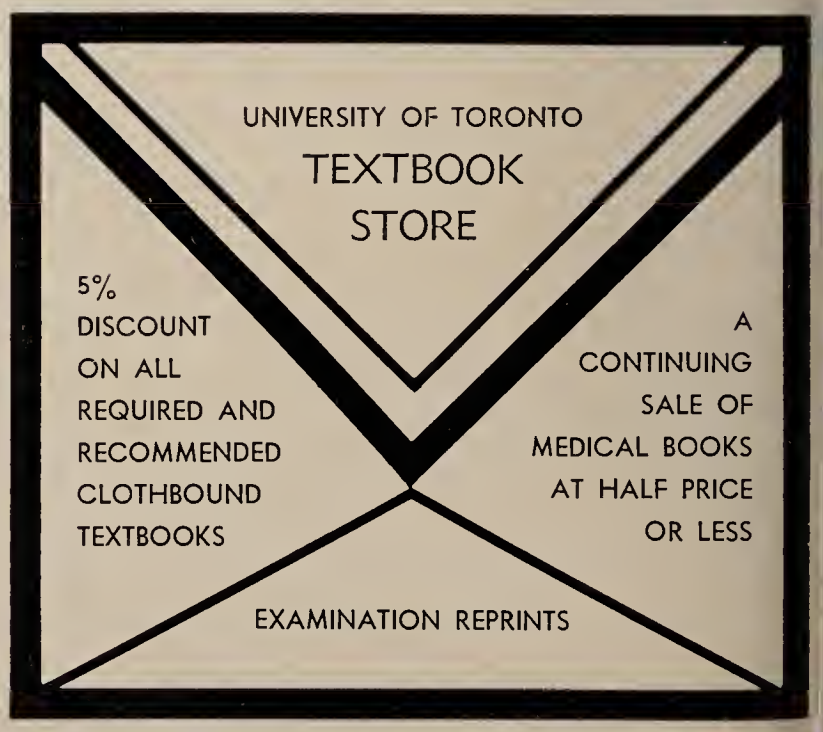

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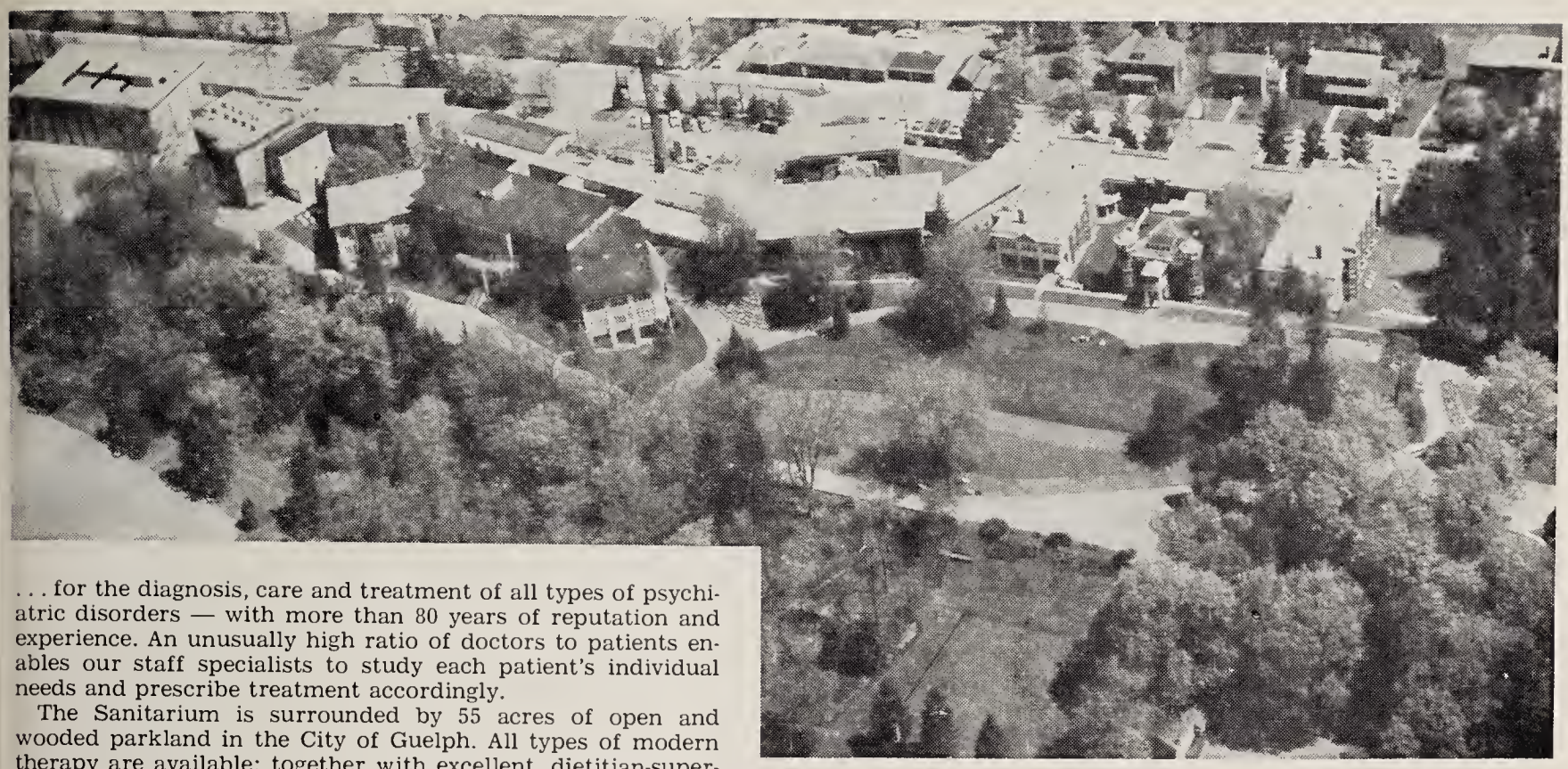

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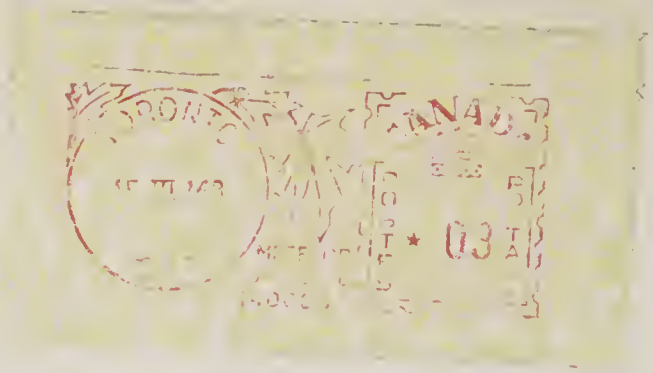

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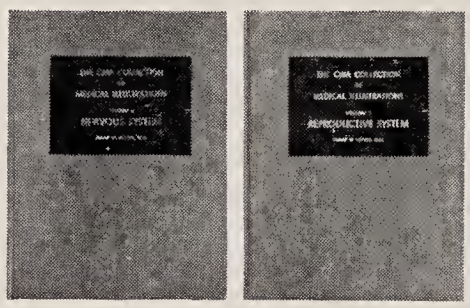

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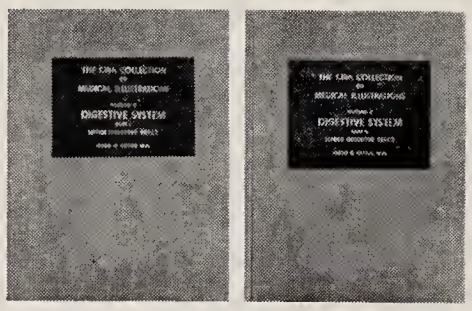

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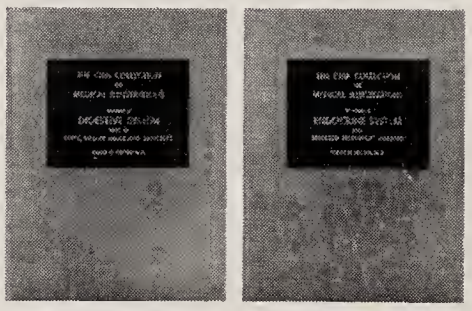

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